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U. S DEPARTMENT OF AGRICULTURE

BIOLOGICAL SURVEY—BULLETIN No. 27

C. HART MERRIAM, *Chief*

THE

NORTH AMERICAN EAGLES

AND

THEIR ECONOMIC RELATIONS

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BY

HARRY C. OBERHOLSER

ASSISTANT ORNITHOLOGIST, BIOLOGICAL SURVEY

WASHINGTON
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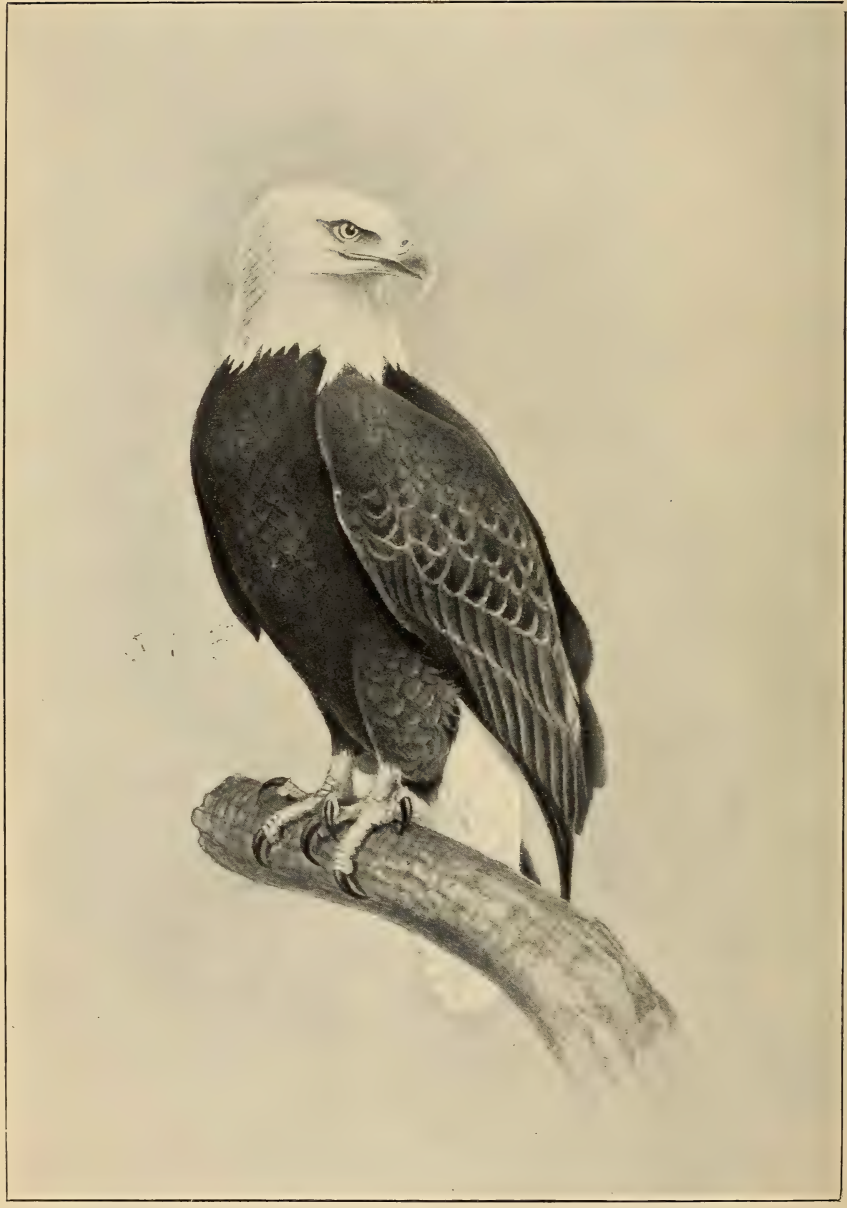
1906



BALD EAGLE (HALIÆETUS LEUCOCEPHALUS).

(Drawn by R. Ridgway.)

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Biological Survey,
Washington, D. C., July 3, 1906.

Sir: I have the honor to transmit herewith for publication as Bulletin No. 27 of the Biological Survey a report on the North American eagles and their economic relations, by Harry C. Oberholser, assistant ornithologist. Widely distributed over the United States and in certain regions numerous, eagles are of considerable economic importance, especially as they are always and everywhere flesh eaters. In some regions they prey upon noxious rodents and render service by disposing of carrion; elsewhere they destroy waterfowl and other game birds, as well as lambs, goats, and poultry. In the present bulletin an attempt is made to bring together all important facts respecting their distribution and food habits and to definitely fix their economic status.

Respectfully,
H. W. Henshaw,
Acting Chief, Biological Survey.

Hon. James Wilson,
Secretary of Agriculture.

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THE NORTH AMERICAN EAGLES AND THEIR ECONOMIC RELATIONS.

INTRODUCTION.

The present purpose is to bring together such facts as have bearing on the economic relations of the North American eagles; and this bulletin has therefore to do with the distribution of the several species, their general manner of life, as well as, most important of all, their food habits. It is difficult to obtain stomachs of eagles for examination, hence few data of this kind have been available at first hand; but all other sources of information have been utilized in order that this report may represent as nearly as possible our present knowledge of the subject.

Wherever eagles occur commonly they are among the best known of birds. They appear frequently in the language and legends of ancient peoples, and often have been chosen as national emblems, since for size, powerful flight, and fierce nature they have been celebrated from earliest historic times. Though found in almost every quarter of the globe—North America, South America, Europe, Asia, Africa, Australia, and the East India Islands—they are most numerous in Europe, Asia, and Africa. North America possesses but four species, only two of which—the golden eagle and the bald eagle—are of general distribution and thus of particular economic interest in this region; while the harpy eagle reaches our territory, if at all, as merely a casual visitor to Texas, and may properly be left out of the present consideration.

Eagles are popularly supposed to be quite different from hawks, but, in a word, they are nothing more than large hawks. Few birds exceed or even equal them in duration of life, for they reach sometimes the age of nearly a hundred years. They are not usually sociable, but live singly or in pairs and dwell in the wilder places in all kinds of country from tropical deserts to the Arctic regions. In their search for food, however, they often wander far, and emboldened by hunger even approach the abodes of man. In story books and newspapers eagles have many times been accused of carrying off young children, but most if not all such tales are wholly unreliable.

Eagles are flesh eaters, and since they consume large quantities of whatever animal food is most accessible they become at times an economic factor of some importance, though whether beneficial or injurious in a given region is not always easy to say. In places overrun by the smaller noxious mammals they frequently perform valuable service by thinning the ranks of such pests, and the fondness of some species for carrion is an added source of benefit to man. But if, perchance, they do render us some good deeds, they offset these by wholesale destruction of waterfowl and game birds and by raids upon the sheepfold, the goat pasture, the cattle pen, and the poultry yard. Thus a just verdict must pronounce them not far from neutral in economic influence. Where and when they are doing good they ought to be carefully protected; if at any time or place they become harmful, means should be taken to obviate the damage they cause; but it would be unnecessary and unwise to declare against all eagles a general war of extermination, since neutral species always bear an important part in the balance of nature, an equilibrium that man should hesitate to disturb.

BALD EAGLE.

(*Haliæetus leucocephalus.*)

The bald eagle, otherwise variously called white-headed eagle, white-headed sea eagle, and bird of Washington, is of particular interest to Americans as the national emblem of the United States, to which dignity it was elevated on June 20, 1782. The name 'bald' eagle, by which the species is almost universally known, originated from the white head and the erroneous impression of baldness it gives at a distance.

This bird measures about 3 or 3½ feet in length, from 6 to 8 feet in extent of wings, and weighs from 6 to 12 pounds. When fully adult its color is dark brown, with white head, neck, and tail, yellow bill, eyes, and feet. At least three or four years are required for the assumption of this plumage, younger birds being entirely brownish or blackish.

The bald eagle inhabits nearly the whole of North America, from northern Mexico and Florida north to Ungava and the Anderson River, west to the mainland of Alaska, the Aleutian Islands, and the Commander Islands, Kamchatka.[a]

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[a] The birds from Alaska and much of British America are considerably larger than those from farther south, and on this account have been separated as a distinct race (*Haliæetus leucocephalus alascanus* Townsend).

GENERAL HABITS.

Over much of its range, particularly in the more thickly settled parts of the United States, the bald eagle is by no means common during the breeding season; but in sections of Florida, on the Aleutian Islands, the coast of southern Alaska, British Columbia, and Washington it seems to be more numerous than anywhere else. From the more northern regions, particularly the interior of Alaska and of northern Canada, it withdraws for the winter when the lakes and rivers freeze; but elsewhere it seems to have no regular or well-defined migration, although during the cold season it wanders more or less, apparently influenced largely by the food supply, since it is easily able to withstand the rigor of even an arctic climate. It is more maritime and fluvicoline than the golden eagle, preferring the neighborhood of the seacoast, lakes, and larger streams, and it is seldom really common at a distance from them. It inhabits, however, all kinds of country so long as the main requisite—plenty of water—is there, and in mountains or on plains, in heavy forests or along barren shores it finds a congenial abode.

Under most circumstances wary and difficult of approach, with an eye open for danger and giving suspected things a wide berth, this eagle, nevertheless, where not molested, is often surprisingly tame and unsuspicious. Unprovoked it rarely attacks man, although such instances have been reported. It prefers trees for watching and roosting, but in spring sometimes descends to ride the cakes of ice in the river, apparently looking for fish. Though not a gregarious species, it may at times be seen in companies of as many as ten or even fifteen individuals. It is evidently not lacking in conjugal affection, and the first mating results in an alliance, defensive and offensive, that is believed to last as long as both survive; but when one of a pair dies, the other, male or female, soon secures another partner that at once assumes the responsibilities of the interrupted household. The notes of this eagle are few, usually produced in a loud, harsh scream, but heard at a distance they lose much of their disagreeable sound. The flight is powerful, capable of being indefinitely sustained, and is accomplished now by steady wing-beats, now by soaring either on a level course or in great ascending circles as is the habit of most large birds of prey. The bird occasionally makes a plunge from a great height—a marvelous feat, performed with such velocity that the eye can scarcely follow the descent. In strength the bald eagle is hardly less remarkable than in power of flight, and it has been known to carry for 5 miles a lamb of weight fully equal to its own. It can readily be kept in confinement, for it will thrive on any kind of meat or fish; and it sometimes even develops no little attachment for its owner.

This species breeds throughout its range wherever suitable places exist, and it has been known to lay and hatch eggs in confinement. In the southern part of the United States, from Florida to Texas, it breeds very early, depositing its eggs usually during the first half of December, exceptionally about the 1st of November, occasionally in January or February; in the Middle States and in California it lays in February or March, and to the northward correspondingly later—about the middle of April in southern Alaska, sometimes in May, or even June, in the Arctic regions.

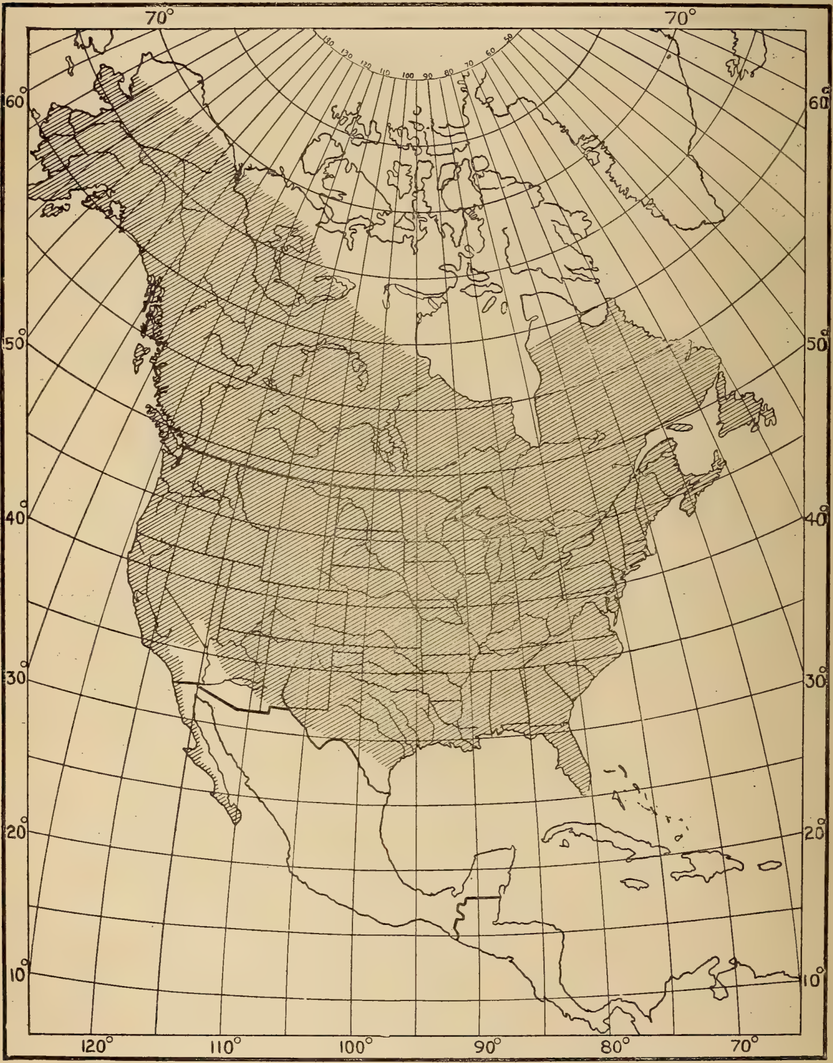

FIG. 1.—Breeding range of the bald eagle (*Haliæetus leucocephalus*).

The nest is located nearly always in the vicinity of a stream or body of water, often along the seacoast. The favorite site is the top of a tall tree, in the South often a pine, frequently a hundred feet or more from the ground. Where there are no trees a rock or a niche in a cliff serves the purpose, while along the coast of Texas nests have been found even on the ground of low islands.

The same nest is occupied year after year, and annually repaired or augmented until it becomes an immense structure 5, 6, or even 8 feet high and as much in diameter, containing fully a cartload or two of material. It usually forms a strong platform with only a slight depression in the center, and easily sustains the weight of a man; but when built on the ground it occasionally consists merely of a few sticks and a little rubbish. The usual material is sticks of all sizes up to fully 3 inches in diameter and 5 feet in length, weeds, vines, grass, moss, and pieces of turf, with more or less lining of twigs, grass, straw, hay, moss, lichens, leaves, and seaweed.

The eggs are dull white and generally two, unusually one or three, rarely four in number. They are deposited at intervals of two to four days, and incubation, in which both male and female take part, lasts about thirty to thirty-six days. The nestlings are at first covered with a whitish, then a grayish, down, which in time gives place to the firmer dark brown feathers of the first complete plumage. They remain a long time in the nest, probably at least three months, during which period they are lavishly supplied with food by their parents.

The old birds commonly make but little demonstration when the nest is approached or even closely examined, though in a few instances they have been known viciously to attack the intruder. Only one brood is reared, and if eggs or young be destroyed no further attempt to rear young is made the same season. Often the old birds, particularly in the South, frequent the nest during much of the year, using it as a kind of general rendezvous.

FOOD HABITS.

The bald eagle lives partly after the manner of vultures, gorging itself to repletion when opportunity offers, then perhaps obliged to fast for days. Lack of food even for a considerable period is apparently no serious inconvenience, since Mr. George A. Boardman once kept an individual without food for thirty-two days. The indigestible portions of its food are ultimately disgorged in the shape of pellets that resemble those of owls. One of these pellets, found by Mr. Edward A. Preble, of the Biological Survey, in a nest at Mount Vernon, Va., some years ago, was almost round, about 1¾ inches in diameter, and composed entirely of the feathers of poultry, together with some mammal hair. The young of this species appear to be fed on the same kinds of food as are eaten by the adults.

FOOD.

FISH.

Fish seems to be the principal food of the bald eagle, and when obtainable is often preferred to anything else. The dead fish found along the shores of sea or lake or river, those that the eagle catches by its own efforts, and those of which it robs the osprey are alike acceptable. In many places it obtains a good share of its food from the dead fish cast up by the waves. Mr. William Brewster mentions that in 1879 it was abundant about Lake Umbagog, Maine, drawn thither to feed on the suckers that in great numbers had died and been left on the marshes and flats by the receding water, while Audubon relates that it was frequently seen to pick up catfish heads which were floating on the St. Johns River, Florida. Mr. C. P. Streater found it common at Sauk, Wash., in September, 1891, feeding on the dead salmon (*Oncorhynchus* sp.) along the shore; and similar observations have been made by others on the Columbia and other rivers of the Pacific Coast. Mr. J. C. Hughes records [a] that along the lower Fraser River in British Columbia he has found it feeding extensively on the oolachans, or eulachons (*Thaleichthys pacificus*), a small fish that is abundant there; and so numerous does the eagle become at times when the fish are running that Mr. Hughes has on occasion counted as many as a thousand in a distance of 3 miles.

But the bald eagle not infrequently goes fishing for itself, using a variety of methods, according to circumstances. Sometimes from its perch on the summit of a dead tree it launches downward and, falling like a stone, seizes its prey; sometimes it hunts on the wing, much like an osprey, and when a fish is perceived poises by rapid wing-beats, finally dropping into the water even from a great height, and not infrequently becoming almost completely submerged; then, again, it varies this last method by flying leisurely along near the surface of the water. Audubon mentions that along Perkiomen Creek near Philadelphia, Pa., he saw it on several occasions wading in the shallows and striking at the small fish with its bill; and other observers elsewhere have noted a similar habit. It has been seen scrambling over the ice of a pond, trying to reach the fish below; and Mr. W. L. Dawson, in his 'Birds of Ohio,' says that at the Licking Reservoir, Ohio, it is reported in winter to watch near the air holes in the ice for the fish that from time to time seek the surface. Mr. J. G. Cooper has seen it catch a flying fish in the air, and the amazing celerity necessary for the performance of such an exploit may readily be imagined.

Although the bald eagle does often fish for itself, it finds a much easier and more congenial task in robbing the mild-mannered ospre of his finny prey. These attacks are of such common occurrence in some localities that they are taken by the osprey usually as a matter of course; but sometimes patience becomes exhausted and a number of ospreys successfully unite to drive away the eagle.

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[a] Forest and Stream, XVIII, 1882, p. 85.

About half of the stomachs of the bald eagle examined in the Biological Survey contained fish, and the following species, mostly additional to those that have already been mentioned, were identified: Fork-tailed catfish (*Ictalurus furcatus*), striped bass (*Roccus lineatus*), goldfish (*Carassius auratus*), eel (*Anguilla chrisypa*), sunfish (*Eupomotis gibbosus*), and shiner (*Notemigonus americanus*).

WILD BIRDS.

It is a regrettable fact that, after fish, birds constitute the most important part of the bald eagle's diet and sometimes furnish almost the entire food. The larger species, particularly of waterfowl and game birds, are preferred; song birds appear rarely if ever to be molested. Dead birds, principally waterfowl, whenever available are greedily devoured, as many observations prove. Mr. W. E. C. Todd has recorded that numbers of long-tailed ducks (*Harelda hyemalis*) washed up dead along the shore of Lake Erie are disposed of in this manner. Wounded or crippled birds are eagerly seized, but as the supply of these is of course limited, by far the greater proportion of the eagle's avian prey must perforce be obtained entirely by its own exertions.

In most parts of its range it feeds more largely on waterfowl than on any other kind of birds. In the pursuit of this game the bald eagle employs great strength and skill, to which it frequently adds no small amount of strategy. Geese, brant, and swans, owing apparently to their large size, are favorite food. Mr. Robert Ridgway mentions that on the main island in Pyramid Lake, Nevada, a pair of bald eagles broke up the nest of a Canada goose (*Branta canadensis*) that had been established on the ground not far from their own. Of the goose and brant hunting habits of the bald eagle at Cobbs Island on the Atlantic shore of Virginia near Cape Charles, Mr. William Brewster, from data furnished him by Mr. Nathan Cobb, gives the following account:[a]

> In the winter the Eagles are much more numerous than at any other time of the year, and my informant has, on several occasions, seen as many as eight at once. At this season the neighboring bays and creeks swarm with Wild-fowl, and upon these the Eagles principally live. He has never known them to capture fish of any kind, although they not unfrequently rob the Fish-Hawk. Geese and Brant form their favorite food, and the address displayed in their capture is very remarkable. The poor victim has apparently not the slightest chance for escape. The Eagle's flight, ordinarily slow and somewhat heavy, becomes, in the excitement of pursuit, exceedingly swift and graceful, and the

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[a] Bulletin Nutt. Ornith. Club, V, 1880, pp. 57–58.

fugitive is quickly overtaken. When close upon its quarry the Eagle suddenly sweeps beneath it, and, turning back downward, thrusts its powerful talons up into its breast. A Brant or Duck is carried off bodily to the nearest marsh or sand-bar, but a Canada Goose is too heavy to be thus easily disposed of. The two great birds fall together to the water beneath, where the Eagle literally tows his prize along the surface until the shore is reached. In this way one has been known to drag a large Goose for nearly half a mile.

A single bird is usually seized at the first attempt, but Mr. Cobb has seen an Eagle repeatedly miss his aim when in the midst of a large flock. The very abundance of opportunities seems to bewilder him, and he thrusts wildly and harmlessly in all directions; but after the crowding masses have become scattered by his onslaught, a separate individual is selected, and quickly overtaken and killed.

Although the larger and heavier Water-fowl are more likely to be attacked, the royal bird seems to find little difficulty in overhauling the swiftest flying Ducks. The latter, however, often escape by diving, although in shallow water this recourse sometimes proves of no avail, as the Eagle follows their course, and seizes them as they rise near the surface. Under favorable conditions even Grebes are sometimes captured.

In winter shooting the sportsman loses many a wounded Goose or Brant by the Eagles. They seem fully aware of the advantages to be gained by maintaining a close espionage upon the gunner's movements, and a bird that falls at any considerable distance from the stand is often seized and borne away before it can be recovered.

Ducks of various kinds, by reason of abundance, fall regularly a prey to the bald eagle, and they are stolen from unwary sportsmen just as readily as larger birds. Mr. C. J. Maynard mentions seeing an eagle swoop down and bear away a bufflehead (*Charitonetta albeola*) just shot and lying on the water only a few yards distant. Wounded ducks, with those purloined from hunters, form at some seasons a good share of its food. It has been seen to drop suddenly and unexpectedly to the water and catch a black duck (*Anas obscura*) before there was any chance of escape, but usually the duck sees the eagle as it comes, and then the process of capture is more protracted. The eagle rushes at its intended victim, which on its approach dives and swims under water until compelled to return to the surface for air, when the eagle again swoops down; and this procedure is repeated until the duck becomes exhausted, is seized, and carried away. Dr. S. D. Judd has seen a wounded scaup duck (*Fuligula marila*) tired out in this way, and saved only by a shot at the eagle. According to observers, such a chase is seldom voluntarily given up until successful. Sometimes two together pursue the duck, making alternate attacks, whereby the hunt is shortened. It is, however, quite capable of catching ducks on the wing, apparently experiencing little difficulty on account of their swift flight.

This eagle is fond also of coots (*Fulica americana*), and Dr. William L. Ralph, quoted by Maj. Charles E. Bendire, says that during winter in the vicinity of Merritt Island, Indian River, Florida, it feeds largely on the coots which then abound there, hunting them usually on the wing. One eagle's nest with two well-grown young, visited by him, contained besides a catfish (*Ameiurus?*) the remains of thirteen coots. Still other water birds are not infrequently captured for food, and of these the various kinds of gulls probably most often. Mr. Everett Smith, writing in Forest and Stream,[a] describes an unsuccessful attack upon a loon (*Gavia immer*) in Maine, ostensibly for the fish it had apparently just caught, but possibly with a more sinister purpose; and Mr. W. W. Worthington gives an instance of the capture of a Florida cormorant (*Phalacrocorax auritus floridanus*) at Darien, Ga.[b]

The bald eagle preys to only a limited extent on the native gallinaceous birds, and then probably for the most part when other means of sustenance are scarce. In Alaska it lives somewhat on ptarmigan (*Lagopus*), particularly in winter, when ducks and geese are gone and fish comparatively hard to obtain. Mr. G. Eifrig records finding a young eagle fighting a wild turkey on Knobley Mountain near Cumberland, Maryland. Audubon says that the bald eagle used to frequent the roosts and breeding places of the passenger pigeon (*Ectopistes migratorius*) for the purpose of picking up the young birds that happened to fall from the nests or any old ones that chanced to be wounded, but that it seldom followed the migrating flocks of pigeons.

POULTRY.

Domestic fowls, principally chickens and ducks, are sometimes killed, to which fact several writers testify. Mr. Charles F. Batchelder was informed that in northeastern Florida the eagle at times carried off poultry, even venturing near the houses for this purpose. Dr. S. D. Judd found a recently killed Plymouth Rock hen in the nest of a pair of eagles near Marshall Hall, Md.; he also states that at the same place domestic ducks are occasionally taken. Yet this eagle does not seem to be a confirmed chicken stealer, and levies on poultry only when most accessible or when other supplies fail.

MAMMALS.

Mammals of many kinds constitute a considerable share of the food, but the larger quadrupeds are not often attacked. The four-footed animal, unless a large one, when struck by the eagle has little chance for escape, since one talon usually pins the two fore legs and head together, while the other pinions the hind feet, and the beak soon breaks the spine of the victim. If the animal be too large to be carried away, the eyes are the first point of attack.

At favorable opportunities this eagle preys upon fawns, and pressed by hunger will sometimes attack a full-grown deer, particularly if the latter be wounded. Remains of a mule deer (*Odocoileus canus*) were found by Dr. E. A. Mearns in the stomach of one from the Mogollon Mountains, Arizona. Mr. E. W. Nelson is authority for the statement that in northern Alaska it feeds at times on young reindeer (*Rangifer arcticus*). Even the wily fox sometimes meets its fate at the talons of this powerful bird, as is shown by Mr. Vernon Bailey's report that at Provo, Utah, a farmer found a gray fox (*Urocyon scotti*), evidently just killed, which a pair of eagles was busy eating. Opossums (*Didelphis*) and raccoons (*Procyon lotor*) are sometimes captured, but the nocturnal habits of these animals probably account for their not being more frequently obtained. Mr. Thomas McIlwraith mentions that an eagle shot on Hamilton Bay, Ontario, had the bleached skull of a weasel hanging firmly fastened by the teeth into the skin of its throat, a grewsome relic of a former desperate struggle.

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[a] Vol. III, 1875, p. 324.

[b] Bendire, Life Histories of North American Birds [I], 1892, p. 279.

Rodents of various kinds form an element of some importance in the diet of the bald eagle. Where squirrels (*Sciurus*) are plentiful they are freely eaten. In California, according to Dr. J. G. Cooper, large numbers of the destructive ground squirrels, or spermophiles (*Citellus*), were formerly killed on some of the ranches, the birds receiving protection in consequence; and instances were reported to him of young eagles reared from the nest and kept in a semi-domestic state, which went out daily to kill squirrels—a hint, perhaps, for California wheat raisers. Prairie dogs (*Cynomys ludovicianus*) are eaten occasionally, but not so commonly as doubtless they would be were this eagle more numerous in the regions where these destructive rodents most abound. Mr. William Lloyd reports visiting a bald eagle's nest containing young, to which the adult birds were seen to bring two prairie dogs; and skins of this mammal were found among the debris of the nest. Rabbits are frequently taken for food; rats and even mice occasionally.

DOMESTIC ANIMALS.

Unfortunately the bald eagle's fondness for mammal flesh leads it to attack domestic animals. This happens rarely to the larger kinds, though a sickly or weakling calf may once in a while be killed; but sheep and hogs in some places suffer considerably. Full-grown healthy sheep are seldom killed, the attacks being confined principally to sick or weakly animals and to lambs. Alexander Wilson quotes at some length from Mr. John L. Gardiner, who a hundred years ago lived near the eastern end of Long Island, New York, showing that this eagle at that early day had already acquired a fondness for mutton. Mr. Amos W. Butler mentions[a] an eagle taken in Knox County, Ind., in October, 1896, that had killed two lambs. Mr. A. F. Gray records[b] an instance at North Coventry, Chester County, Pa., of an eagle that carried off a large lamb and returned the following day for another; and Mr. J. Otis Fellows tells[c] of an eagle that at Hornellsville, N. Y., in the spring of 1878 swooped down on a flock of sheep, and, as he expressed it, "made a breakfast on lamb chops before he could be driven off." Mr. H. W. Henshaw, writing of the northern Pacific coast region of the United States, says that many lambs were annually destroyed by the bald eagle.

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[a] Twenty-second Ann. Rep. Dep. Geol. and Nat. Res. Indiana, 1897 (1898), p. 794.

[b] Forest and Stream, V, 1876, p. 195.

[c] Ibid., X, 1878, p. 319.

Many writers note the destruction of swine by the bald eagle, but these reports almost all refer to young animals. In places, particularly the southeastern United States, where this eagle is common, and where large numbers of pigs are raised and allowed to run more or less wild, there is from this source a loss that at times is by no means insignificant, the bird occasionally venturing boldly even close to human dwellings in pursuit of its prey. Wilson records that in the lower parts of Virginia and North Carolina in his time it destroyed great numbers of young pigs, and that complaints there against the bird were very general. A writer in Forest and Stream[a] states that a bald eagle was killed by a Mr. Towry near Smithville, Miss., as it was feeding on one of two hogs that it had just killed; and Mr. C. J. Maynard says that in Florida he once saw three eagles attacking several young pigs which were, however, valiantly defended by their mother.

Mr. Vernon Bailey reports that on one occasion the little dog of a ranchman in the Davis Mountains, Texas, was picked up by a bald eagle, but finally dropped. Dogs are, however, sometimes eaten.

MISCELLANEOUS.

The bald eagle does not disdain carrion, and in some parts of the arid West it lives at times to a considerable extent on the cattle and smaller domestic animals that fall victims to drought or other catastrophe. Several of the early ornithological writers, including Wilson, mention its abundance along the river below Niagara Falls, whither it used to resort for fish and for the carcasses of the various animals that had been precipitated over the falls. Wilson tells also that on one occasion when many thousands of tree squirrels were drowned in attempting to cross the Ohio River not far from Wheeling, W. Va., and a great number drifted to the shore, a bald eagle for several successive days regaled itself on them. Carrion was found in the stomachs of two eagles examined by Dr. A. K. Fisher; Mr. Horace A. Kline has seen this bird along the Wakulla River in Florida feeding on the carcass of an ox, again on that of a sheep; and Mr. L. M. Turner, while visiting Atkha Island in the Aleutian chain, Alaska, found a pair wrangling with gulls and ravens over the decaying remains of a sea-lion. Sometimes it drives away the gathered vultures or the dogs from their repast and keeps them at a respectful distance until its hunger is satisfied. Furthermore it does not hesitate even to pursue the vultures and compel them to disgorge, when if it fail to catch the coveted morsels before they reach the ground it alights and devours them. Audubon relates that on one occasion he saw it kill a vulture that for some reason was unable completely to disgorge.

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[a] "G. C. E.," Forest and Stream, VIII, 1877, p. 17.

Along the shore of the Bay of Fundy, in May, 1833, Audubon found this eagle in company with crows and ravens feeding on mussels and 'sea eggs.' Occasionally it seizes prey that it is unable to eat, as in the following case mentioned by Maj. C. E. Bendire on the authority of Mr. Samuel B. Ladd: The ground beneath a nest found by the latter gentleman in Lancaster County, Pa., was strewn with land terrapins in various stages of decay, which the eagles had evidently taken to feed their young and upon more careful examination thrown out of the nest.

ECONOMIC STATUS.

Since the bald eagle feeds largely on fish of various kinds, it of course destroys species useful to man, and to this degree must be considered injurious; but the total amount of this harm would seem to be comparatively small, for much of its finny prey consists of species not economically important. On the other hand the devouring of vast quantities of dead fish, that if left to decay would pollute the air, is a positive benefit. Its destruction of ducks, geese, and other water fowl, all of which are available as food for man, is perhaps its most serious because most frequent fault; but this is to a considerable extent local, and confined largely to the winter and the seasons of migration. It attacks gulls and other non-game water birds so seldom that even were their economic value much greater than it is there would be little against the eagle on this score. Upland game birds are not often molested, and song birds are evidently considered too small to be worth pursuit.

Although not often attacking large animals, it sometimes kills fawns. This, however, is much more than offset by its destruction of such more or less noxious mammals as opossums, raccoons, ground squirrels, prairie dogs, rabbits, rats, and mice.

The complaints lodged against this eagle for the destruction of poultry and the smaller domestic animals, such as pigs and sheep, seem to come largely from the southeastern United States, in localities where the bird is rather numerous, where other food is at times scarce, and where the domesticated animals are easy of access; but the total amount of this damage is, comparatively speaking, not great. The bald eagle is, moreover, almost everywhere somewhat of a scavenger, a trait that should be set down to its credit.

All things considered, the bald eagle is rather more beneficial than otherwise, since much of its food is of little or no direct economic value, while the good it does more than compensates for its obnoxious deeds; and furthermore it seems not likely ever to become abundant enough in any locality to be seriously destructive.

DESTRUCTION BY MAN.

By reason of its size, strength, power of flight, its manner and place of living, this eagle has no formidable enemies except man. In some localities, as for instance parts of California and Ohio, it is held in high regard by the people on account of its beneficial or interesting habits; but in most places it is the victim of the all too common impulse to kill or of an exaggerated estimate of its destructiveness. It has been much reduced in numbers along the Niagara River below the falls by hunters aware of its habit of resorting there for food.

Mr. James H. Gaut, while in the field for the Biological Survey, reported from the Wichita Mountains, Oklahoma, under date of May 28, 1904, that a few years previous this species was quite numerous in that locality, but at the time of his visit almost extinct as a result of persistent persecution by the Indians, who prize the tail-feathers for decorating their war bonnets. The two largest feathers of the tail bring a dollar each, while the others are sold for fifty cents apiece.

The rifle and the shotgun are the implements of warfare that seem to be most frequently employed against this eagle, though sometimes the steel trap has proved equally effective. There is some question regarding the effect that poison has on the bald eagle, and unfortunately we are unable to settle the question. Mr. Thomas McIlwraith states that in winter at Hamilton Beach, Ontario, poisoned carcasses placed near the edge of the ice are readily eaten, and that often the bird dies before leaving the spot. Audubon, however, mentions an entirely unsuccessful attempt to poison an eagle of this species,[a] during which a number of mineral poisons were successively administered in large doses, including a dram of corrosive sublimate and an equal quantity of white arsenic, but none of these produced the slightest apparent effect. Strychnine is commonly supposed to be a certain means of death for eagles, but why this should be so if mineral poisons are harmless is not clear.

In most of the States of the Union and in many of the Canadian provinces the bald eagle is protected by law, either specifically or by general enactment, but in a few it is still specially exempted from the provisions of the general non-game protection acts. For many reasons, patriotic, esthetic, and economic, this fine eagle is worthy of preservation, and not only should it everywhere be protected by legislation, but public sentiment ought to be aroused in its favor that it be not exterminated from our domain.

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[a] Ornith. Biog., II, 1835, p. 163.

GRAY SEA EAGLE.

(*Haliæetus albicilla.*)

The gray sea eagle is of about the same size as the bald eagle, from which it differs most noticeably in brownish instead of pure white head, neck, and upper tail-coverts. Its technical name—*Haliæetus albicilla*—means literally 'white-tailed sea eagle,' and its English name, 'sea eagle,' originated from its well-known fondness for the seacoast.

It ranges over most of Europe, including Iceland and Nova Zembla, also the greater part of Asia, south to northern India and Asia Minor and to northern Africa; in North America it occurs, however, so far as known, only in Greenland, on the shores of Cumberland Sound, and on the Aleutian Islands, in the last locality positively recorded from only Unalaska Island, though doubtless to be found elsewhere. In Europe there is a more or less well-defined southward movement in autumn, at least from high northern latitudes, but in Greenland, where this bird is common and breeds, it remains over winter, and there is no record of its occurrence on the American Continent to the southward.

GENERAL HABITS.

Although but locally, and to some extent seasonally, common, even in the vicinity of the seacoast, where it usually breeds, it is found also about lakes and rivers, sometimes far in the interior and occasionally even away from water. It lives preferably about cliffs or rocky islets, yet where such are not available it haunts the forests or even the open country. It is fond of lofty perches from which it can survey the neighborhood for miles around, and here it watches for prey, which it is said to hunt largely during the early hours of the day. It seems to be less on the wing than some other eagles and ordinarily does not fly at so great a height. It is not gregarious; is wary, though sometimes allowing a close approach; and its note is a shrill scream. It mates for life, although if one of the pair be killed the other soon contents itself with another mate. Kept in confinement, to which it can be readily accustomed, it often becomes docile.

In Europe this eagle breeds from February to May, according to latitude; in Egypt, during December and January; in Greenland, about May. The nest is placed on a cliff or rock pinnacle, in a tree or even on the level ground. When on a rock or a cliff, either of which seems to be a favorite location, it is often in the wildest part of the coast and practically inaccessible to enemies. It is a bulky structure, sometimes 6 or 8 feet in diameter and 5 or 6 feet in height, nearly flat on top, and is composed chiefly of sticks, lined with twigs, dry grass, weed stalks, moss, and seaweed. The eggs are commonly two, occasionally one or three in number, and are white, normally unspotted. The same aery is occupied for many successive seasons, sometimes as many as twenty or more, and receives additions and repairs each year as necessity requires. Both male and female take part in the incubation, which lasts about a month.

FOOD.

Fish forms one of the chief articles of diet, especially in summer, and is obtained in part by fishing much after the manner of the osprey. Once in a while a fish too large to be managed is attacked, and the eagle, if unable to extricate its talons, is drawn under the water and drowned. The dead fishes and other offal thrown up by the waves along the shore are, however, quite as much to its taste as freshly caught fish, and the gulls that gather about such food are often driven away by the sea eagle until it has appropriated all it desires. One eagle was found to have gorged itself from the carcass of a stranded whale.

Birds also, principally waterfowl and game birds, are an important element of diet. The various kinds of water birds along the coast furnish a ready supply of food, and from vantage point of rock or cliff the eagle swoops down on its victims. This bill of fare includes plovers, curlews, cranes, grebes, wild geese, coots, ducks of various species, and indeed almost all kinds of water birds; also bustards are sometimes taken. Meves states that on one occasion in western Russia, at a nest containing two young eagles respectively about five and eight days old, he found remains of the following birds: Two eiders (*Somateria* sp.), one red-breasted merganser (*Merganser serrator*), one goosander (*Merganser merganser*), and two long-tailed ducks (*Harelda hyemalis*). At certain times, particularly in winter, and in certain places, especially in the interior, the sea eagle destroys many grouse, pheasants, and other upland game birds, and occasionally, when other food becomes scarce, also crows and small song birds of various kinds. Dr. G. Rörig found remains of an owl in the stomach of one individual. It is known also to carry off poultry even from the vicinity of farmhouses.

Though of powerful build the gray sea eagle is not so bold and active as many of its relatives, and apparently seldom attacks large animals. Mr. A. von Homeyer states that on one occasion he saw it kill a fox, and Dr. G. Rörig found remains of a fox in one of the eagle stomachs he examined. In winter, however, when in sore need of food, it has been known to attack a deer, and it sometimes kills young seals. It is fond of rabbits (*Oryctolagus cuniculus*) and hares (*Lepus timidus*), and particularly in winter feeds upon them to a considerable extent. On the steppes of southern Russia it often pounces upon ground squirrels (*Citellus citellus*), and in the same region it is said to hunt moles (*Spalax pallasii* and *Spalax typhlus*) and to seize them while they are working below the surface of the soil. It preys somewhat also on mice, rats, and other small mammals, occasionally even a dog. In some sections shepherds complain that, whenever opportunity offers, this eagle attacks weak or sick sheep and kills a good many lambs. It apparently feeds readily on any kind of carrion.

ECONOMIC STATUS.

Altogether, the gray sea eagle appears to do more harm than good, and in some localities laws have been passed providing for its destruction. In North America the species occupies an area so small and so far to the northward that it is not likely ever to become an economic factor of importance.

GOLDEN EAGLE.

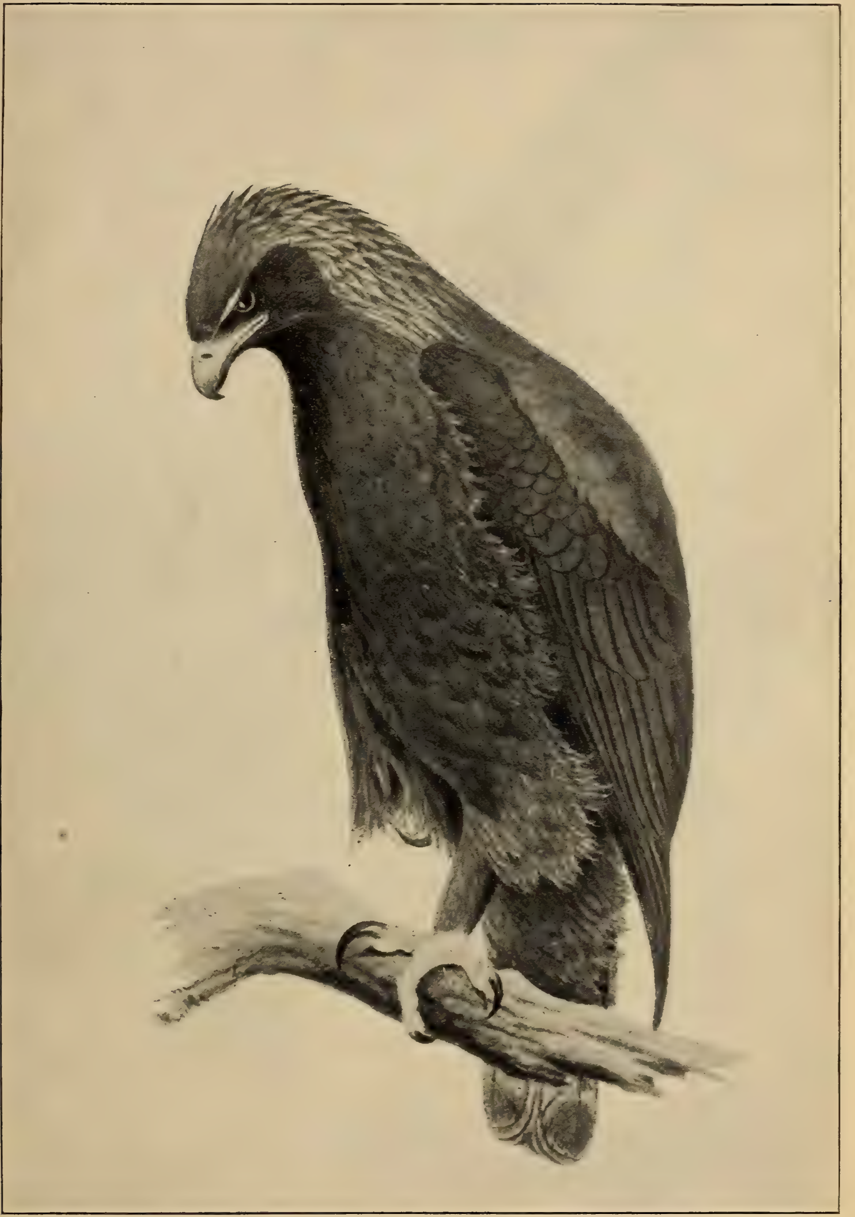
(*Aquila chrysaëtos.*)

Few if any eagles are better known than the golden eagle, nor more nearly comport with the idea of strength and independence associated with such birds. With one possible exception no eagle has so wide a geographical distribution: it is found at some season of the year throughout most of Europe, northern Africa, Asia south to the Himalayas, and in North America south to Mexico. It breeds, however, principally in hilly or mountainous regions, preferably in unsettled parts, and in North America chiefly in the north and west, but also along the Appalachian Mountain ranges to southern North Carolina.

The adult golden eagle, or 'mountain eagle,' as it is sometimes called in the western United States, is about 3 feet in length, 7 feet in expanse of wing, and sometimes weighs 12 pounds or more. It is entirely dark brown in color, with pointed yellowish brown feathers covering the hind neck, whence the name 'golden' eagle. Young birds are more blackish and have the base of the tail white, from which they have been called 'ring-tailed' eagles, a plumage retained for at least three years; but the species may always be distinguished from the bald eagle, the only other eagle of common occurrence in the United States, by the feathering of the legs, which in the golden eagle extends quite down to the base of the toes.

GENERAL HABITS.

While it does not winter in the most northern parts of its range, the golden eagle is not, strictly speaking, migratory, for, being able to endure the severest cold, its movements into regions not occupied in summer are more in the nature of wanderings, induced doubtless by search for food, and probably are seldom extensive. It can



GOLDEN EAGLE (AQUILA CHRYSAËTOS).

(Drawn by R. Ridgway.)

scarcely be considered common anywhere in the eastern United States and in most sections is very rare, but in some parts of the West it is fairly abundant. The mountains and rocky hills are its chosen abode, whence it issues on its forays; and it is just as much at home in the desert as in well-watered regions. It has a strong, well-sustained flight, and may often be seen soaring in circles at great height above the earth. It is usually wary, and is rather a solitary bird, seldom seen in more than pairs, though on some occasions it has been observed in small flocks, even in the eastern United States. Its cry is a sharp, harsh scream of few notes, and is heard most often during the breeding season. So far as known it mates for life, or at least for many years, though at the death of either of the pair, the other more or less promptly secures a new consort. In nature it is fierce and untamable, and it will sometimes attack even man, particularly if disturbed when feeding. In captivity it may easily be kept for years, but with disposition quite unchanged.

The golden eagle builds its nest usually on rocky cliffs, sometimes on steep river bluffs, often in practically inaccessible places; but in many localities, such as the Pacific coast region of the United States, trees are utilized, the height from the ground varying from 10 to over 100 feet. The site chosen is preferably in an uninhabited spot, but occasionally not far from a farmhouse. In the latitude of central California the eggs are deposited late in February, in March or April, but in Arizona sometimes in January, and along the northern part of the bird's range as late as May or even June. The same nest is occupied year after year, provided the bird be undisturbed, but if the eggs be taken, breeding is ordinarily abandoned until the following season, when a new nest is constructed near by, sometimes even on the same tree; and the bird, if again molested, reoccupies the original aery.

The nest is a well built though bulky structure, commonly when first constructed not very large—about 2½ or 3 feet high and 3½ or 4 feet in outside diameter—but by the additions made during successive years finally sometimes 7 feet high and 8 feet in diameter, and containing fully two wagonloads of material. It is practically a strong platform having a slight depression for the eggs, and is composed largely of sticks, some of them 2 or 3 inches in diameter, twigs, roots, weed stalks, branches of evergreen, leaves, and rubbish of various kinds, with more or less lining of straw, grass, moss, bits of bark, pine needles, green or dry leaves, and feathers, and with often the addition of a piece of 'soap root' (*Chlorogalum pomeridianum*) (in California) or fresh evergreen, apparently as an ornament or badge of occupancy.

The eggs are usually two in number, occasionally one or three, very rarely four, and range in color from plain white to very heavily marked with various shades of brown. They are not usually deposited on successive days, but at intervals of sometimes as much as a week. The period of incubation has been given variously as from twenty-five to thirty-five days; probably thirty days is the average time. The young when first hatched are covered with a white down

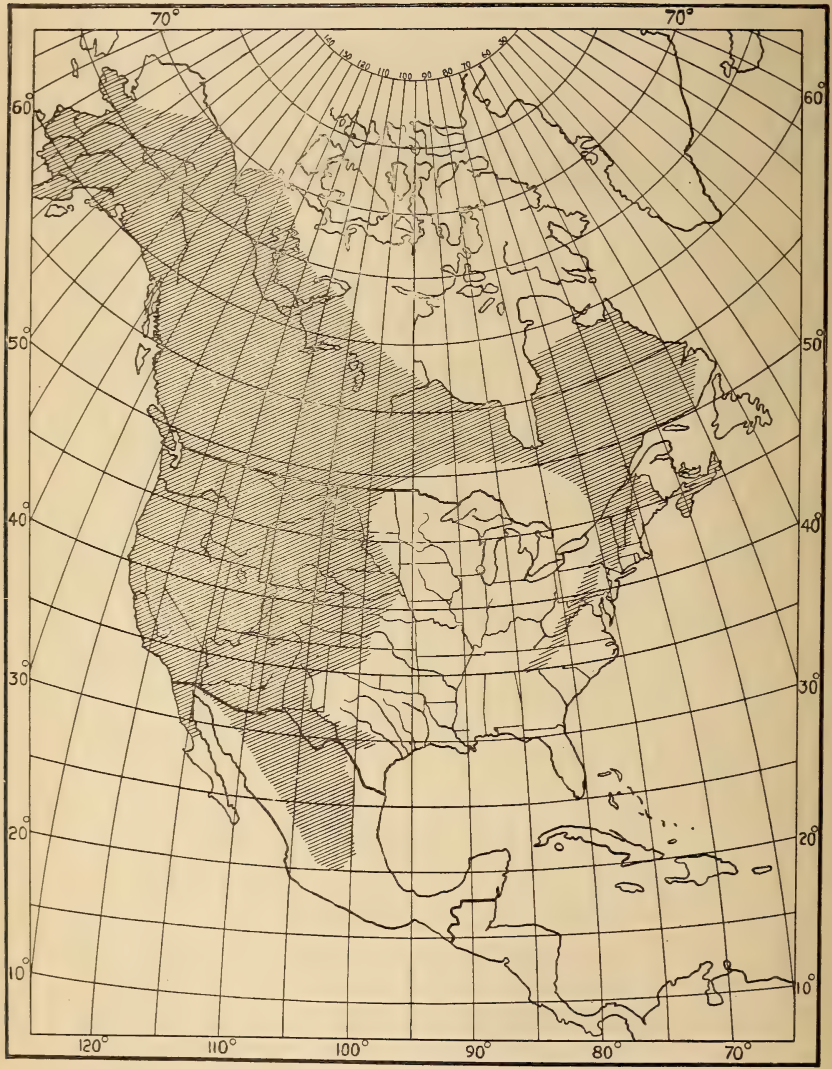


FIG. 2.—Breeding range of the golden eagle (*Aquila chrysaëtos*).

which lasts for several weeks until gradually replaced by the new brown feathers. The young grow rapidly, but remain a long time in the nest—from two to three months. They are sometimes savage and while in the aery resent any familiarity, but sometimes may be handled almost with impunity; probably individual temperament has much to do with this difference. Contrary to the many stories current regarding the fierceness of the golden eagle in defense of its brood, it strangely enough very rarely attacks persons who approach or even rob its nest. Indeed, at such times it seems to be actually cowardly, or at least quite unsolicitous for the safety of eggs or young, and at anyone's approach quietly leaves the vicinity. The male apparently does not assist in incubation, but shares in brooding the young, and in shading them when the heat of the sun becomes too great.

FOOD HABITS.

The golden eagle is apparently not so swift in flight as the bald eagle, and less often chases its prey on the wing, preferring to hunt mostly by soaring or slow flying and dropping suddenly upon the selected victim. It also has favorite perches from which it watches for prey. The two birds of a pair hunt often together, and many a victim is thus taken that would escape a single bird. The favorite time for hunting is the forenoon, unless the day be cool and cloudy. Although inured to long fasts, this species is, like most other birds of prey, a voracious eater, and at every opportunity gorges itself to repletion. Birds are partially or wholly plucked before being eaten; the larger mammals are often decapitated and stripped of their fur; but small mammals are swallowed, bones, hair, and all, and the indigestible parts finally disgorged in pellets at intervals of a few days. The young are kept well supplied with food, often with much more than they can eat, brought at least two or three times a day.

Food.

MAMMALS.

Mammals form one of the two most important elements of the food of this species. The larger kinds appear not to be often attacked unless wounded or sick, but their young are frequently victimized. This is particularly the case with various species of deer in both Europe and America. Mr. Charles F. Morrison records the killing of a full-sized black-tailed deer (*Odocoileus hemionus*) in Montana, and there are numerous accounts by other writers of attacks on crippled, weak or sickly deer. Also the deer that are wounded by hunters and that escape only to die are often devoured, and, on occasions like the one in New Jersey recorded by Mr. John H. Sage, the eagle gorges itself to such an extent that it can be killed with a club. The number of fawns killed, particularly where deer are at all numerous, must be large, for most observers unite in saying that fawns form an important article of the golden eagle's food. The young of also other ungulates, such as antelope, wild sheep, and reindeer, are sometimes taken. The shooting of a mountain goat or other large game animal in a country where this eagle abounds frequently attracts the bird to the spot with the hope of a repast. Foxes are occasionally eaten, as the stomach examinations made in Germany by Doctor Rörig testify. Audubon says that raccoons are sometimes taken as food.

Probably no mammals are more frequently fed upon than hares and rabbits, due no doubt to their abundance, wide distribution, and ease of capture. Nearly all writers on the golden eagle mention rabbits as a component of its food. Mr. W. Steinbeck reported that at Hollister, Calif., rabbits formed one of the principal parts of the bird's diet, as they do in many other localities. These animals are frequently brought to the young, and at almost every aery the skulls and other bones of rabbits are conspicuous. In Europe the common rabbit (*Oryctolagus cuniculus*) is sometimes captured, though apparently not so often as other species of the family. Mr. E. S. Cameron, who has recently published a very interesting account of the nesting and food habits of this eagle,[a] mentions that on one occasion when one of his birds made a swoop at a jack rabbit and missed, whereupon the rabbit sought refuge in a prairie dog burrow, the eagle took up a position near by to await its appearance. While usually content to secure its prey by stealth, the golden eagle sometimes exerts its powers of flight in open chase. In one instance, witnessed by Mr. W. L. Atkinson near Santa Clara, Calif., a pair of eagles pursued a large jack rabbit across a field and caught it after an exciting hunt. The large northern hares, in both Old and New Worlds, even more frequently than other rabbits fall a prey to this eagle. In Scotland, according to Saunders, these animals form a considerable part of its food, and in many of the deer forests of the European Continent, at least during some seasons of the year, little else is eaten. An eagle of this species killed March 19, 1897, at Aitkin, Minn., is recorded by Mr. Albert Lano[b] to have made a meal off the common white hare (*Lepus americanus virginianus*) of that region; and the stomach of a female shot by Mr. J. Alden Loring at Jasper House, Alberta, in 1895, contained the remains of young hares (*Lepus americanus columbiensis*).

In some parts of the western United States, particularly in California, where ground squirrels, or spermophiles (*Citellus*), are numerous, these animals form an important food supply, and their destruction is probably the best service rendered by the golden eagle. At Sargents and Hollister, Calif., according to Major Bendire, they are the principal regimen, and Mr. J. E. McLellan reported the same condition in San Mateo County and at Pescadero, Calif. Mr. W. L. Finley, in a recent article on the nesting of the golden eagle,[c] has some interesting observations on the food habits during the breeding season. The nest of a pair near Oakland, Calif., was kept by him under surveillance from the time the eggs were laid until the young had flown, and during this period the food apparently consisted almost entirely of spermophiles (probably *Citellus beecheyi*). As many as four of these were found lying on the nest at one time, and the remains about the nest, as well as the pellets cast up by the young, came almost wholly from ground squirrels. Mr. Finley estimated that at least six spermophiles were consumed daily by this family of two young and two adult eagles, which seems to be a conservative statement: on this basis 540 spermophiles were destroyed during the three months the young occupied the nest. In an eagle's aery near Marathon, Texas, the writer found, among other things, a spermophile (*Citellus mexicanus parvidens*), but in this region, doubtless owing to the greater abundance of other food, particularly rabbits and prairie dogs, this animal is apparently not so frequently eaten. Along the Anderson River in Arctic North America, however, the spermophiles (*Citellus parryi*) that there abound are, according to Mr. R. MacFarlane, an important source of food.

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[a] Auk, XXII, 1905, pp. 158–167, pls. II–VI.

[b] Auk, 1897, p. 317.

[c] Country Calendar, I, 1905, pp. 41–46.

Tree squirrels (*Sciurus*) are sometimes captured, though by no means so often as spermophiles. The former have been found in California aeries by Mr. H. R. Taylor and Mr. C. Barlow, and Dr. C. H. Merriam records that an Abert squirrel (*Sciurus aberti*) was found in the stomach of an eagle killed in August, 1889, on San Francisco Mountain, Arizona.

Where prairie dogs (*Cynomys*) occur abundantly in the vicinity of an eagle's aery they furnish by no means a small part of the bird's food, and the number destroyed must be large. In the aery near Marathon, Texas, we found two prairie dogs (*Cynomys ludovicianus*) practically untouched, while many bones of the same species were recognized in the debris scattered on the rocks below. Mr. Bailey found bones at a nest near Cuervo, New Mexico. Prof. D. E. Lantz informs the writer that in Haskell County, Kans., at a time when prairie dogs were being poisoned, he has seen eagles, principally of the present species, come often to feed on the dead and dying animals, but without apparent injury from the poison.

Marmots, woodchucks, or ground hogs (*Marmota*), as they are variously called according to locality, are not infrequently devoured, particularly in the western part of the United States. Mr. J. A. Loring saw an eagle pursuing a half-grown hoary marmot (*Marmota caligata*) at Henry House, Alberta, in July, 1896, and Maj. C. E. Bendire records that at Camp Harney he has found the half-eaten carcass of a yellow-bellied marmot (*Marmota flaviventra*) in a nest of this eagle, and has even surprised an eagle from the ground as it was feeding on one of these animals it had just killed. Brehm states that the European hedgehog (*Erinaceus europæus*) is sometimes captured by the golden eagle, and that this animal's spiny coat, so efficient a protection against many of its enemies, is apparently little or none against the eagle.

Various smaller mammals, particularly rodents, are at times eaten. Mr. Vernon Bailey discovered bones of a pocket gopher (*Cratogeomys castanops*) among those of other animals at an aery near Cuervo, New Mexico, and these and similar gophers are doubtless elsewhere taken. In Europe the native rats (*Mus*) and in North America the wood rats (*Neotoma*) are eaten by both adults and young. Mr. R. MacFarlane records that in the region of the Anderson River in Arctic America mice and lemmings form a part of the food, but such ignoble quarry is probably a last resort.

DOMESTIC ANIMALS.

The golden eagle seldom attacks full-grown domestic animals, but often kills their young, particularly where easily accessible or when other food is not readily obtainable. Lambs are apparently the most frequent victims, and although the eagle probably seldom if ever carries a weight of more than 10 or at most 12 pounds, and the lambs taken are therefore of rather small size, the damage to flocks in many localities, in both Europe and America, is considerable. According to Mr. William Brewster, young lambs in the valleys of the mountain region of western North Carolina are subject to the attacks of this eagle, but the bird is not common enough there to do much damage. In the West, however—in California as elsewhere—it is very troublesome on many of the sheep ranches, and is therefore cordially hated by the sheep owners, who lose no opportunity for its destruction. Mr. E. S. Cameron, writing for the vicinity of Fallon, Mont., states that the eagles whose nest he watched carried off a number of lambs, but ceased their depredations after one of their young was killed by a shepherd. Mr. Cameron states also that some thirty years ago this eagle was abundant on the western coast of Scotland and that each pair during the breeding season taxed the sheep farmer one or two lambs every day. So numerous and so destructive did the eagles become that a war of extermination was waged against them by the farmers and hundreds were killed. On the continent of Europe a single sheep farm is said to have lost from raids of the golden eagle alone as many as 35 lambs in a single season.

Other domestic animals are not infrequently seized for food. In some places in Europe and America kids and even goats are attacked by this eagle. Calves, too, are sometimes killed, even in well-settled regions, and Mr. Oliver Davie records that a golden eagle captured near Columbus, Ohio, had caused the farmers considerable annoyance in this way. Mr. J. A. Loring in 1892 was informed by

Mr. J. Tevebaugh of Cochetopa Pass, Colorado, that one of these birds once assailed one of his young calves, but was beaten off by the mother. Pigs are sometimes attacked even in their pens, and Mr. A. W. Butler states that an eagle was killed in White County, Ind., in December as it was hovering and about to swoop down on a litter of little pigs. It once in a while makes a meal off a dog; and it has been known to pounce upon a domestic cat, but such an occurrence is doubtless unusual.

WILD BIRDS.

Birds of various kinds, together with mammals, form the bulk of the golden eagle's food. The larger species of birds are the ones most commonly taken, while the smallest song birds pass practically unnoticed. Upland game birds appear to be preferred to all other birds and are persistently hunted.

The different kinds of grouse, no doubt from their general distribution over the areas occupied by this eagle, are much sought by it as food, both in Europe and America. In eastern North America the ruffed grouse (*Bonasa umbellus*) suffers, in the West the blue grouse (*Dendragapus obscurus*), the sage grouse (*Centrocercus urophasianus*), and especially the sharp-tailed grouse (*Pedioecetes phasianellus* and subspecies). Mr. Robert Ridgway records an instance of the pursuit of a sage grouse by a pair of eagles on the East Humboldt Mountains, Nevada, in which the grouse was overtaken in open chase and seized and borne away the moment it alighted on the ground. Near Lewiston, Idaho, Mr. H. W. Henshaw shot a golden eagle that was eating a freshly killed sharp-tailed grouse, and the Nez Perces Indians told him that grouse were often killed by golden eagles. Dr. J. C. Merrill found a dead sharp-tailed grouse (*Pedioecetes phasianellus columbianus*) in an eagle's nest near Fort Custer, Mont., and Mr. E. S. Cameron, in regard to the nest in Montana previously referred to, says that his eagles must have destroyed large numbers of sharp-tailed grouse, since he never visited the nest without finding one; and when the young eagles were nearly grown they were fed almost exclusively on this game bird. The killing of so many in their breeding season is of course particularly disastrous to the species. From what is known, the golden eagle seems to be partial to this grouse, and the total annual destruction must be very large, though there are no accurate means of determining its extent. Still an estimate of the probable number of sharp-tailed grouse destroyed may be interesting. Allowing a pair of eagles to every 100 square miles in Montana, which is probably conservative, there would be 1,450 pairs in the State, and should each one of these pairs kill only one grouse per day for the three months during which eaglets remained in the nest, 130,500 grouse would be destroyed in Montana during this period alone, while it is not to be supposed that at other times the eagles refrain entirely from a diet of game birds. Furthermore, since at this time the grouse themselves have young or eggs, the death of the parent birds means usually the loss of the brood, and this would amount at the lowest calculation to double the number of adults (probably much more) or 261,000 young. Adding to this the adults, there results a total of 391,500—a number that is astonishingly large, yet doubtless well within the truth. The destruction of young is of course not as detrimental as that of an equal number of adults, for the young have less chance in the struggle for existence, and in the above calculation ample allowance has been made accordingly.

In Europe the black grouse (*Lyrurus tetrix*) and other species of grouse, as well as pheasants, are assiduously sought by the golden eagle and in some localities their numbers seriously depleted. Mr. E. S. Cameron states that on the island of Jura, Inner Hebrides, the grouse, once abundant on the moor, were so much molested by this bird of prey, which hunted them much as does a peregrine falcon, that they left the place.

In the northern regions ptarmigans (*Lagopus*) often furnish a part of this eagle's food. The red grouse of Great Britain (*Lagopus scoticus*) and the various other ptarmigans of Europe, as well as those of Alaska and Arctic North America, are among the victims. Mr. R. MacFarlane has found ptarmigans in the nest of the golden eagle on the Anderson River, Mackenzie, and these birds are probably often fed to the young.

Wild turkeys, particularly in regions where they are numerous and not wary, are, owing to their size, attractive quarry for the golden eagle; and, at least formerly, probably occupied no insignificant place on its bill of fare, to which effect we have the testimony of Audubon and other authors.

Also bobwhites (*Colinus*) are sometimes taken, as is evidenced by a specimen of the golden eagle killed near Wooster, Ohio, which had remains of one in its stomach. Mr. J. B. Purdy records the capture of an eagle near Northville, Mich., which was so intent on its pursuit of a covey of bobwhites that it entangled itself in a thicket of raspberry bushes.

Wild waterfowl are not so much hunted by the golden eagle as by the bald eagle, but are, nevertheless, an important article of diet. Occasionally game of this kind that has fallen to the gun of the hunter will be seized and borne away before his eyes. Mr. R. MacFarlane mentions ducks as a part of the regular food in the region of the Anderson River, Mackenzie, and Mr. L. M. Turner makes a similar statement regarding the coast of Alaska. Geese and swans, particularly the former, are the principal other water birds eaten; but curlews, plovers, and probably similar species, at least in Europe, are once in a while appropriated. Mr. George A. Boardman has seen a great blue heron (*Ardea herodias*) attacked by a golden eagle, but whether to make a meal from it or for some other reason was not apparent.

A few additional kinds of wild birds are known sometimes to be taken. Prof. A. E. Verrill records that a golden eagle was captured near New Haven, Conn., while feeding on a red-tailed hawk (*Buteo borealis*), portions of which were found in its craw—strange prey for an eagle! Dr. G. Rörig found remains of a short-eared owl (*Nyctalops accipitrinus*) in the stomach of a golden eagle from Germany. Mr. E. S. Cameron says that his Montana eagles often brought meadow larks (*Sturnella neglecta*) to the nest for the young to eat. Brehm states that the trustful calandra lark (*Melanocorypha calandra*) of Europe is occasionally killed for food, but this is probably in default of other prey.

POULTRY.

On occasion the poultry of the farmer is laid under tribute, but complaints of this are not frequent. Brehm tells that in Europe he has known the domestic turkey to be attacked even in the poultry yard. Mr. William Brewster says that in the mountain valleys of western North Carolina geese are sometimes destroyed, and Dr. E. A. Mearns records an instance of the same near Cold Spring, N. Y.

MISCELLANEOUS.

In some localities, particularly in the arid western United States, snakes of various kinds, particularly the larger ones, are not infrequently killed for food. Mr. E. S. Cameron says that his eagles brought numbers of rattlesnakes (*Crotalus confluentus*) to the young, and that once he noticed a bull snake (*Pityophis sayi*) in the nest. The rattlesnakes were said to be caught by being seized close behind the head, after which the head was torn off and eaten and the body conveyed to the aery.

Carrion of any kind is acceptable, though apparently not usually so when other food is plenty and easily obtained. Mr. Cameron states that the pair of eagles whose nest was watched by him never, so far as he was aware, took carrion to the young, although there were numerous carcasses of cattle scattered about the neighborhood. Mr. E. W. Nelson, however, has reported this eagle's feeding on the remains of a hog in Illinois; Mr. C. L. Rawson has recorded its devouring a sheep that had been killed by dogs near Salem, Conn.; and Prof. F. E. L. Beal informs the writer that once in Iowa he has known of its eating a dead cat on the prairie. Dr. A. K. Fisher found carrion in the stomach of a golden eagle killed at Gaithersburg, Md., in December, and also in that of one obtained at Whipple

Barracks, Ariz., in the same month. Mr. L. M. Turner states that in Alaska the dead fishes along the shore are at times probably eaten, though he seems to have no actual proof of this occurrence.

Tortoises are occasionally captured, and, according to Brehm, are made ready for eating by being dropped from a height to break the shell. Mr. Vernon Bailey found remains of a tortoise among the debris under an eagle's aery at Cuervo, New Mexico. But possibly the most remarkable food that the golden eagle has ever been known to eat is that which Brehm says was once found in its stomach by Doctor Reichenow—potatoes!

In captivity this species readily accepts any kind of fresh meat, of which it will consume as much as two pounds daily. It also has been known to eat a piece of cooked beefsteak. Curiously enough, some individuals refuse to touch flesh that is in the least degree tainted, or even that has once accidentally been dropped from the claws. Chickens, sparrows, and other birds, cats, squirrels, rats, and other mammals, alive or dead, as well as raw fish, are apparently enjoyed.

ECONOMIC STATUS.

The considerable destruction of fawns for which the golden eagle is responsible must, in an economic estimate, be set down against the bird. The large number of grouse, ptarmigan, and other similar game birds killed is a very heavy charge against it, for most of these birds, aside from their food value to man, are known to be of considerable economic importance as insect and weed-seed destroyers. The destruction of water birds, such as ducks and geese, is, in the golden eagle's case, of much less consequence, since the number taken is relatively small, but so far as it goes is for the most part an injury. The song and other birds taken are so few that they need scarcely more than be mentioned. The very common depredations upon the young of various domestic animals, particularly sheep, form one of the most damaging counts against this eagle; and although lambs seem not especially to be sought when other food is plenty and easily secured, the loss at times is so great that means have to be taken for protection of the flocks, usually by killing the eagles. Poultry, though not infrequently caught, is ordinarily protected by being near the farmhouse, where the eagle does not usually care to venture.

On the other hand, much good is done by the often extensive slaughter of spermophiles in agricultural or grazing localities, where they are very injurious to crops. The same may be said of prairie dogs, except that their geographic distribution is much more limited, and that for this and other reasons they are not so frequently captured.

The killing of jack rabbits and cottontails in the western United States is also a benefit, for these animals are often a pest. In the deer forests of Europe this eagle is considered beneficial and is protected because it preys upon the hares that abound there. In the far north of both continents, however, rabbits can not be called injurious, and the eagle is therefore not to be specially commended for destroying them.

Other animals eaten to some extent by the golden eagle, and whose destruction is to be treated, in large degree at least, as advantageous, are marmots, rats, mice, and rattlesnakes. The eagle does man another good turn in disposal of carrion, though this is not a very regular or frequent occurrence. Good, therefore, in some respects, but bad in others, the golden eagle must be considered on the whole more harmful than beneficial.

DESTRUCTION BY MAN.

The golden eagle has few natural enemies, and when free from human interference usually maintains its numbers. It is, however, very easily trapped, taking sheep, deer or rabbit bait most readily, but attracted by almost any kind of carcass, and so unsuspicious and eager for a meal that often several may be caught successively at the same place by the same bait. In fact, it frequently walks into snares set for other things; and Mr. E. S. Cameron states that in Montana some years ago the traps laid for wolves all but exterminated the golden eagle over a large area. It is not easy to shoot, being exceedingly wary under most circumstances. It is furthermore apparently not affected by poisoned bait, and there are lacking definite data to show that such means would be efficacious in its destruction.

The Indians prize the wing and tail feathers for their war bonnets, and kill the eagle whenever opportunity offers. In some sections, particularly in California, it suffers to no little extent from the raids of egg collectors—all the more from its habit of returning each year to the same locality. In some European countries bounties are paid for the destruction of the golden eagle, but in many of the States of the Union and in some of the provinces of Canada it is now protected along with the bald eagle. Its general extermination is by no means to be recommended, for in places where it does damage it usually may be kept in check by local means.

Issued August 1, 1907.

U. S. DEPARTMENT OF AGRICULTURE

BIOLOGICAL SURVEY—BULLETIN No. 28

C. HART MERRIAM, Chief

GAME COMMISSIONS AND WARDENS

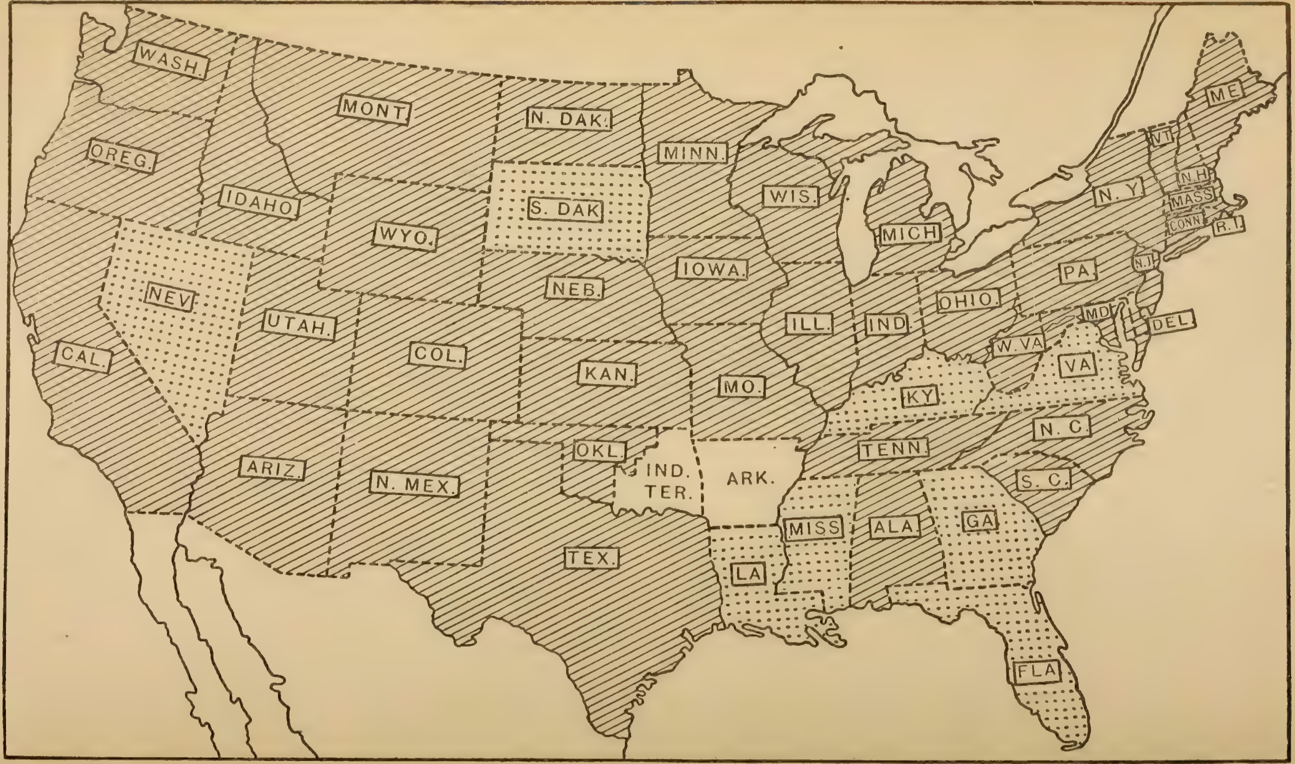
THEIR APPOINTMENT, POWERS, AND DUTIES

BY

R. W. WILLIAMS, Jr.
GAME LAW ASSISTANT, BIOLOGICAL SURVEY

1862 1889

WASHINGTON
GOVERNMENT PRINTING OFFICE
1907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Map Showing Officers Charged with Enforcement of Game Laws.

Ruled areas show States which have State wardens or commissions; dotted areas States which have only county wardens; blank areas States which have no special officers to enforce game laws.

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1907

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Bureau of Biological Survey,
Washington, D. C., June 29, 1907.

Sir: I have the honor to submit herewith for publication as Bulletin No. 28 of the Biological Survey a report entitled "Game Commissions and Wardens," by R. W. Williams, jr., game law assistant in the Biological Survey. This report has been prepared under authority of section 1 of the Lacey Act, directing the Secretary of Agriculture to collect and publish useful information as to the preservation of game and other birds, and in response to frequent demands for information respecting the provisions for enforcing State game laws and the manner in which such laws are carried into effect.

As indicated by its title, this bulletin is restricted to the appointment, powers, and duties of State officers, and does not consider the enforcement of Federal laws or regulations of any kind. The report has been divided into three parts, as follows: Part I consists of a general discussion of the office and duties of wardens; Part II is a condensed summary of the provisions of game laws relating to enforcement; and Part III contains the full text of such laws. Sections relating to fish, the operation of hatcheries, and the enforcement of special fish laws are omitted. By the aid of summaries and tables the subject-matter has been arranged so as to facilitate ready reference and comparison of the various provisions.

The 8 maps and diagrams are necessary for the proper illustration of the text.

Respectfully,
H. W. Henshaw,
Acting Chief, Biological Survey.

Hon. James Wilson,
Secretary of Agriculture.

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PREFACE.

The publications on game laws originally contemplated by the Biological Survey and outlined in its reports comprise three series: (1) A summary of the laws relating to seasons, shipment, sale, and licenses; (2) a digest of laws relating to nongame birds; and (3) a digest of provisions for the enforcement of game laws. The first of these publications was issued in 1900 and has since been revised each year; the second was published in 1900 and revised in 1902; the third is now published for the first time. No other general work or compilation of game laws contains existing provisions relating to enforcement, and heretofore to compare such laws it has been necessary to have recourse either to the statutes or to the separate pamphlet editions of the game laws of each State.

In number of game laws and frequency of change in their provisions the United States probably surpasses all other countries of the world. Nearly 700 game laws have been enacted by State legislatures since the passage of the Lacey Act in 1900. Many of these laws are local in character, some have been amended, and a few have been repealed; but a large number of general provisions are still, nominally at least, in force. Of these a great many are dormant through lack of adequate means of enforcement, in spite of the fact that an important part of the legislation of the last seven years has comprised measures designed to give effect to the great body of game laws now on the statute books. It is thus evident that the chief need of game protection at the present time is not so much an increase in the number of game laws as more effective enforcement of those already enacted. The problem of how to make the rapidly growing and frequently changing mass of legislation readily accessible to the general public is one which has not yet been satisfactorily solved, and the rapid increase in population and in the number of persons who hunt makes its solution more and more difficult, notwithstanding modern systems of publication and distribution adopted by the game departments of most of the States.

In the fifty-five years which have elapsed since the office of game warden was first established, the population of the United States has increased from less than 25,000,000 to more than 82,000,000, and during this period the proportion of those who hunt has probably increased in even greater ratio. The number of those who hunted in 1905 is conservatively estimated at from 2,500,000 to 3,000,000. To regulate hunting by this constantly growing army of sportsmen it has been found necessary to improve the efficiency of the warden service, and since 1900 the number of States which have general officers in charge of game law enforcement has advanced from 31 to 39. In Tennessee the office of warden has been raised to the dignity of a department of the State, and in 11 States the salary of the executive officer is $2,000 or more, reaching in New York the sum of $5,000 a year. The problem of providing funds necessary for the maintenance of the work intrusted to these officers has been greatly simplified by the adoption of the license system. In 1905 the funds available for game protection consisted of fees from hunting licenses amounting to more than half a million dollars, specific appropriations aggregating about $350,000, and receipts from fines and miscellaneous sources probably sufficient to bring the total up to nearly a million dollars. At least 9 States have already reached the point where the warden department has been placed on a self-sustaining basis.

Knowledge of the provisions by which the laws are enforced is not only important for economical and successful administration by officers specially charged with such duties, but is of value to many persons interested in game protection, and especially to residents of States which have under consideration the establishment of a warden system best adapted to meet local needs and conditions. In order to present this information in the most convenient form the present bulletin has been divided into three parts: Part I contains a historical summary of the evolution of the warden service and general discussion of various features connected with warden work; Part II, a summary of the important provisions of the laws stated in the briefest possible form and arranged in uniform sequence; Part III, extracts from the statutes relating to game warden departments, duties and powers of officers, and special provisions connected with administration. No effort has been spared to make the report as complete and accurate as possible. In addition to extracts from the statutes, it contains the results of seven years' observation of the methods of administering game laws and the conclusions of those who have contributed to the discussion of points of special interest. The extracts from the laws have been brought down to date by inclusion of the amendments made in 1907; and in many instances the text is annotated by references to decisions of the higher courts and to important articles in sportsmen's journals for the benefit of those who may care to consult the history or the discussion of special subjects.

T. S. Palmer,
In Charge of Game Preservation.

GAME COMMISSIONS AND WARDENS.

THEIR APPOINTMENT, POWERS, AND DUTIES.

PART I.—GENERAL DISCUSSION.

GAME OFFICIALS.

DEVELOPMENT OF THE STATE GAME COMMISSION AND WARDENSHIP.

The offices of game commissioner and State game warden of the present day are not the outcome of spontaneous growth, but the result of numerous experiments and modifications necessitated by the growing importance of the subject of preserving game. Originally game protection was left to sheriffs and other local officers, and later, after the appointment of fish wardens, was included incidentally among the duties of that office. In Arkansas the game laws are still enforced by the local constabulary, and in California the protection of game is still, as originally, under the charge of the board of fish commissioners.

The development of the office of State game warden from that of fish warden occupied a period of nearly half a century and was marked by various experimental steps. Maine was apparently the first State to provide a special officer charged with the duty of protecting fish. Under a law passed in 1843 the governor was required to appoint three 'fish wardens' for each of the counties of Penobscot, Hancock, and Waldo, to serve three years, and to meet annually at Bangor for the transaction of business connected with the supervision of the salmon, shad, and alewife fisheries of Penobscot Bay and River. The idea seemed to meet with popular approval, for in the following year, 1844, it was extended in a modified form by the passage of a law requiring the towns of Cushing, St. George, Thomaston, and Warren to elect fish wardens annually (two in Warren and one in each of the others) to supervise the fisheries in Georges River. In 1852, nine years after the adoption of the fish-warden system and twenty-two years after the passage of the first law protecting moose and deer in the State, the legislature of Maine applied the new plan to the protection of game by authorizing the governor to appoint a 'moose warden' for each of the counties of Oxford, Franklin, Somerset, Penobscot, Sagadahoc, Aroostook, and Washington, whose duties included the protection of deer as well as moose. Again the plan seemed to meet with approval and was extended. In 1853, a year later, the office of town moose warden was established, and each town in the State was authorized to elect one of these officers charged with the protection of its big game.

In 1858 the example of Maine was followed in New Hampshire by the passage of a law authorizing the selectmen or municipal authorities to appoint fish wardens. The compensation of these officers consisted of one-half of the fines resulting from prosecutions instituted by them, an incentive to vigilance still employed in many States. The growth of fishery interests, particularly in the New England States, soon demanded effective organization, and the 'fish commission' came into existence in 1865 in Massachusetts and New Hampshire, and in 1867 in Connecticut and Vermont. That of New Hampshire is of special interest in this connection, since it was subsequently reorganized as the first fish and game commission of the country.

In 1868 New York followed the example set by the New England States and created a fish commission, and three years later, in 1871, adopted the Maine plan of placing the protection of game in the hands of a special officer. Boards of county supervisors were authorized to hold elections in each town for a 'game constable' to serve a year and receive as compensation half the fines recovered in prosecutions under the game laws and in addition such fees as were allowed constables. In the next two years provision was made for special officers in two other States, but modified to suit local conditions: In 1872 Maryland established a 'board of ducking police' to enforce the ducking laws on the Susquehanna Flats, at the head of Chesapeake Bay, and in 1873 New Jersey, under a statute authorizing the incorporation of a game protective association, granted certain police powers to members of such associations, with authority to enforce the game laws in certain counties.

Meanwhile the laws of Maine had been extended to include game birds as well as big game, and in 1878 the duties of the warden were similarly extended under the new title of 'county moose and game warden.' In the same year occurred the reorganization of the New Hampshire fish commission as a board of fish and game commissioners. Finally, in 1887 Minnesota established the office of State game warden, and in 1888 New York that of chief game and fish protector. Thus within fifty years after the appointment of fish wardens in Maine the benefits of warden service had been recognized in half a dozen States by the successive creation of the moose warden in Maine, the game constable in New York, the ducking police in Maryland, the association member with the authority of a constable in New Jersey, the fish and game commissioner in New Hampshire, and the State game warden in Minnesota.

It is beyond the scope of this bulletin to trace the course of evolution of the game wardenship in each State; but it will be of interest to note the changes occurring in Connecticut, which may be taken as a typical illustration. Here the appointment of 'commissioners on fisheries' was first authorized in 1867, with a view to the introduction and propagation of fish. The act provided for appointment by the governor of three commissioners to hold office for one year and to make complaints for violations of the fish laws, consider the introduction, protection, and culture of fish, cooperate with fish commissioners of other States, and report to the legislature. Their compensation was fixed at $3 a day while officially employed and an allowance for necessary expenses. In 1870 the term of office was increased to four years. An act of 1871 authorized the appointment by the selectmen of any town, upon the request of the fish commissioners, of two or more fish wardens to assist them in detecting and prosecuting offenders in such town, with compensation to be prescribed by the selectmen and paid from the town treasury. In addition to such compensation they were allowed one-half the penalty recovered when offenses were detected by them. It will be noticed that the right of arrest, search, and seizure was not conferred upon the commissioners or wardens by this act; they could only request the issue of warrants to sheriffs, constables, and police officers. In 1872 the fish commissioners were authorized to appoint two or more fish wardens for each town, such wardens to receive the same fees allowed grand jurors in criminal cases and one-half the penalty recovered when they detected the offense. This was the first authorization to the commissioners to appoint wardens. In 1873 the powers of sheriffs, so far as they extended to arrests, were conferred upon the town fish wardens. No further change was made for nine years, when, in 1882, the original act of 1867 as amended in 1871 was still further amended by reduction of the term of office of the commissioners to three years and addition of a provision that their appointment should be "with the advice and consent of the Senate." The following year, 1883, the legislature recognized the necessity for some officer to superintend the protection of game by providing for the appointment by the selectmen of every town of two or more game wardens "to assist in detecting and prosecuting offenses" against the game laws; their compensation was to be the same as that received by grand jurors for similar services in criminal cases, their term of office was two years, and they were invested with the same powers as other officers to arrest for violations of the game laws.

Six years elapsed before another change was made. In 1889 two very similar acts were passed, one providing for the appointment of game wardens, the other providing for the appointment of fish wardens. The county commissioners of every county were to appoint one of each of such officers for their county; the term of office was placed at two years; power to arrest for violations of the respective laws was conferred upon them, and they were authorized to deputize any person to assist them in detecting and arresting offenders; and they were required to take the oath of office. Game wardens were given power to search any refrigerator or other receptacle in any place where gray squirrels, ruffed grouse, woodcock, or quail might be sold, bought, or transported in violation of law, while fish wardens were authorized to search any basket, bag, vehicle, or other place where fish were kept or carried. The fish wardens were allowed the same fees grand jurors received in criminal cases, and in addition one-half of the fines recovered where the offenses were detected by them. No compensation was provided for the game wardens. A peculiar and somewhat anomalous provision of each act required the county commissioners to furnish the names of the wardens upon request of any citizen of the State. One effect of the fish-warden act was to take away from the fish commissioners the power to appoint wardens conferred upon them by the act of 1872. In 1893 the legislature declared that in prosecutions relating to game the warden, deputy, or other officer making the arrest should be entitled to a fee of $10 where conviction was had, to be taxed as costs against the defendant. During the same year an act was passed granting to the commissioners of fisheries the right to appoint not more than three special deputies who should perform in any county of the State the same duties and receive the same compensation as the fish wardens authorized by the laws of 1889. Another act of the same year, amending the act of 1889, authorized the county fish warden to appoint not more than 10 deputies. Consolidation of fish and game interests took place in 1895, when the act (ch. 46, p. 465) creating a commission of fisheries and game was passed. It provided that on or before May 1 of that year and biennially thereafter the governor should appoint three commissioners of fisheries and game, to succeed the officers already existing and to exercise the same powers. The compensation remained as before, but the new commissioners were granted an allowance of $200 a year for clerical expenses. Their duties included the supervision of fish hatcheries; introduction, distribution, and propagation of fish and game; and enforcement of the laws, for which last-mentioned purpose they were given the powers of other officers to arrest and prosecute offenders. They were also empowered to appoint the necessary number of special protectors, who could serve in any county and under the same compensation allowed fish and game wardens. With some additional power the present commission is substantially the same as that created in 1895.

A few States, while retaining the combined duties of enforcement of fish and game laws in one office, have found it expedient to assign the purely economic work of fish culture to another board; but New York, Oregon, and Tennessee have not only continued to allow one officer to perform the different duties, in spite of their growing importance, but have also committed forestry to his charge. In 8 States—Florida, Georgia, Kentucky, Louisiana, Mississippi, Nevada, South Dakota, and Virginia—the game laws are still administered by county or district wardens. But as methods of game protection develop, the local system becomes more and more inadequate, and most States have replaced it with the stronger one in which the duties are committed to a board of commissioners or to a State game warden and his assistants. Evidence of the superiority of this plan is found in the fact that it has now been adopted by 39 States, as shown in Plate I (frontispiece) and in the following table:

Table showing Dates of Establishment of Game Commissions and State Wardenships.

State.	Title.	Date.
Alabama	State game and fish commissioner	1907
Arizona	Fish and game commissioners	1887
California	Board of fish commissioners	1870
	Jurisdiction extended to game	1878
Colorado	State fish commissioner	1877
	Jurisdiction extended to game	1891
	State game and fish commissioner	1899
Connecticut	Commissioners on fisheries	1867
	Commission of fisheries and game	1895
Delaware	Delaware game protective association	1879
Idaho	Fish and game warden	1899
Illinois	Game warden (one for each of the three largest cities)	1885
	State game commissioner	1899
Indiana	Commissioner of fisheries	1881
	Commissioner of fisheries and game	1899
Iowa	State fish and game warden	1897
Kansas	Commissioner of fisheries	1877
	State fish and game warden	1905
Maine	Commissioners of fisheries	1878
	Jurisdiction extended to game	1880
	Commissioners of inland fisheries and game	1899
Maryland	Board of special ducking police	1872
	Game warden	1896
Massachusetts	Commissioners of fisheries	1865
	Jurisdiction extended to game	1886
Michigan	Game and fish warden department	1887
Minnesota	Commissioners of fisheries	1874
	State game warden	1887
	Board of game and fish commissioners	1891
Missouri	Game and fish warden	1895
Montana	Board of game and fish commissioners	1895
	State game and fish warden	1901
Nebraska	Game and fish commission	1901
New Hampshire	Fish commission	1865
	Board of fish and game commissioners	1878
New Jersey	Commissioners of fisheries	1870
	Jurisdiction extended to game	1894
	Board of fish and game commissioners	1895
New Mexico	Game and fish warden	1903
New York	Commission of fisheries	1868
	Chief game and fish protector	1888
	Forest, fish, and game commission	1895
North Carolina	Audubon Society of North Carolina	1903
North Dakota	State game warden	1895
	District game warden	1903
Ohio	Commissioners of fisheries	1873
	Commissioners of fish and game	1886
Oklahoma	Territorial game and fish warden	1899
Oregon	Game and fish protector	1893
	Game and forestry warden	1899
Pennsylvania	Board of game commissioners	1895
Rhode Island	Commissioners of birds	1899
South Carolina	Audubon Society of South Carolina	1907
Tennessee	State warden	1903
	State warden of game, fish, and forestry	1905
Texas	Fish and oyster commissioner	1895
	Game, fish, and oyster commissioner	1907
Utah	State fish and game warden	1897
	State fish and game commissioner	1899
Vermont	Fish commission	1867
	Fish and game commission	1892
	Fish and game commissioner	1904
Washington	Game warden	1890
	State fish commissioner and game warden	1899
West Virginia	Game and fish warden	1897
Wisconsin	State warden	1891
Wyoming	Fish commissioner	1879
	Jurisdiction extended to game	1895
	State game warden	1899

COMMISSIONS.

One Territory and 13 States—Arizona, California, Connecticut, Delaware, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, North Carolina, Ohio, Pennsylvania, Rhode Island, and South Carolina—commit the administration of their game laws to boards of commissioners,[a] whose membership, except in Delaware, North Carolina, and South Carolina, ranges from 3 to 6. All except those of Delaware, North Carolina, Pennsylvania, and Rhode Island are also charged with the enforcement of the fish laws. In California the board is a fish commission with jurisdiction over matters pertaining to game. In Ohio not more than 3 of the 5 members, and in New Jersey not more than 2 of the 4, may belong to the same political party—an effort in each case to preserve a nonpartisan body. Pennsylvania also prohibits the appointment of any 2 of the 6 commissioners from the same senatorial district. As a precaution against the retirement of all the members at the same time, Ohio, in the act creating the commission, provided that one should be appointed for one year, another for two, another for three, and so on, and at the expiration of the respective terms the successor should be appointed for five years. Pennsylvania adopted a similar plan. In this way there is always a quorum familiar with the duties of the board and the greatest efficiency is insured.

Office.—In most cases the State commission has an office at the State capital, but in California, Connecticut, Delaware, New Hampshire, New Jersey, and North Carolina, the main office is located in some commercial center, or the business is transacted at the place of residence of some member of the commission.

Appointment.—In every State the commissioners are appointed by the governor, and it is usual to require their confirmation by the senate or executive council. No special qualifications for appointment are required by the acts creating commissions.

Term.—The terms of service vary from two years in Arizona and Connecticut to five years in Massachusetts, New Hampshire, New Jersey, and Ohio. In California the commissioners serve "during the pleasure of the governor."

Bond.—Ohio is apparently the only State which requires the members of the board to give bond ($2,000), but this is a common requirement when the duties of the office are intrusted to a single commissioner or warden.

Compensation.—In Arizona, California, Minnesota, New Jersey, Ohio, Pennsylvania, and Rhode Island the commissioners receive no compensation, the position being largely an honorary one, but not without responsibility and care. It is customary, however, to allow them a sum, usually fixed by law, to defray their expenses. In Arizona

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[a] In Delaware, North Carolina, and South Carolina incorporated societies exercise the functions of a commission, as explained on p. 18.

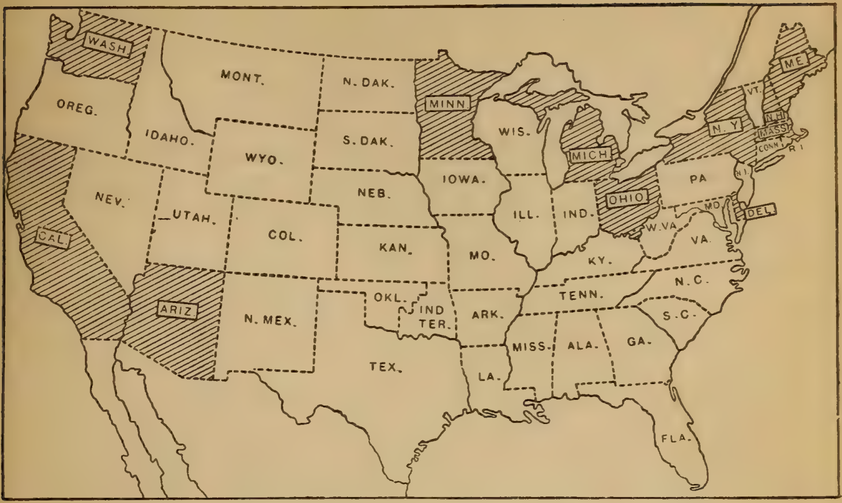
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FIG. 1.—STATES (RULED) WHICH HAD GAME COMMISSIONS IN 1890.

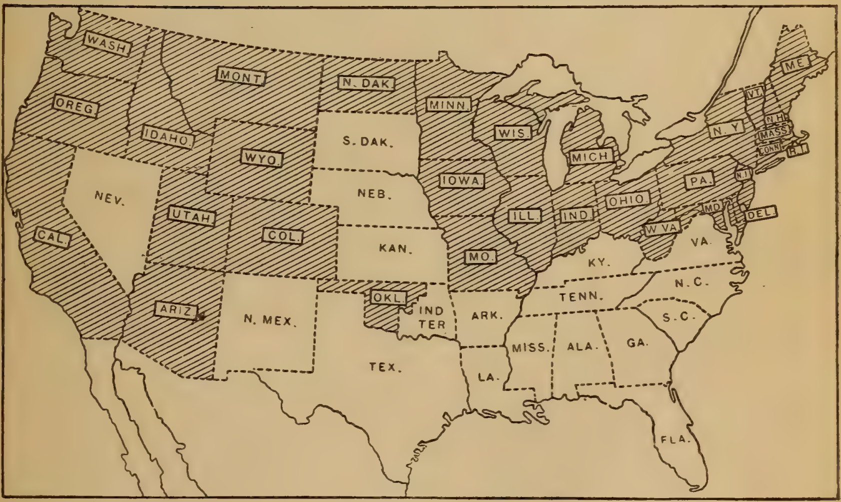
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FIG. 2.—STATES (RULED) WHICH HAD GAME COMMISSIONS IN 1900.

MAPS SHOWING PROGRESS IN ESTABLISHMENT OF GAME COMMISSIONS.

the legislature of 1905 appropriated $698.25 to cover the expenses of the commissioners for the years 1903 and 1904; in Minnesota the commissioners receive their necessary expenses, to be paid upon itemized statements duly audited by the commission; New Jersey allows each commissioner $200 per annum for traveling expenses; and in Ohio the commissioners receive reimbursement for all expenses incurred in the discharge of duty. Nothing is stated in the laws of California and Pennsylvania in reference to the expenses of the commission, but the legislature appropriates an amount for use in the performance of their duties. Rhode Island in 1907 set apart $300 to be used by the commissioners of birds during that year. The other four States provide regular stipends. Connecticut allows each commissioner $3 per day and his actual expenses while officially employed and also grants $200 per annum for the clerical work of the commission; Maine pays the chairman of the commission $2,000 a year, the second commissioner, who is also land agent, $2,000, and the third commissioner $1,000; Massachusetts does not specify the salary of the commissioners of fisheries and game in the statute creating the office; but New Hampshire allows the chairman of the board of fish and game commissioners $1,000 per annum and the other two members $800 each.

Duties and powers.—The duties of the commissioners in every State are similar and comprehend every phase of game protection. Their powers in some States are very broad and extend to the enforcement of the laws by action without warrant. Thus in Arizona, Maine, Massachusetts, Minnesota, New Hampshire, New Jersey, and Rhode Island the commissioners may arrest without warrant under certain conditions. They usually have power to appoint deputies, fix their compensation, and prescribe the terms of their service. In Maine the commissioners may, when they deem it for the best interests of the State, entirely prohibit the taking of any kind of game in any part of the State for a series of years not exceeding four, but are required to make periodical reports to the governor or the legislature, showing in detail these and other transactions of their offices.

Board meetings.—As the commissioners usually serve without compensation or for small salaries and reside in widely separated sections of the State, it is not contemplated that they shall hold continuous sessions, but merely assemble at stated times for the transaction of business. Thus, in Pennsylvania it is provided that they shall have an office in the State capitol, where they shall hold meetings on the first Thursdays of January and July and at such other times and places in the State as they shall appoint. In Minnesota the commission is required to have an office in the capitol, where the members meet at such times as they deem necessary. Similarly, in Ohio the commissioners maintain an office in Columbus and meet as often as necessity requires.

Executive officer.—Under the conditions just described it is obviously necessary that there should be an officer, with a definitely located office, to perform the duties and attend to the business of the commission when it is not in session. The Arizona commissioners designate one of their number as business agent. In California the fish commission has a chief deputy, who devotes his entire time to the duties of the commission. The Minnesota law authorizes the board to select one of its members as the executive agent, who is required to devote all of his time to the duties of his office, and is empowered to exercise all the rights and authority of the commission when it is not in session. His compensation is placed at a sum not to exceed $2,500 per annum, and he must give bond to the State in the sum of $5,000, conditioned upon the faithful accounting of all State property coming into his hands. Pennsylvania also makes provision for a secretary, who acts in the capacity of chief warden and business manager for the commission.

Incorporated societies—In three States—Delaware, North Carolina, and South Carolina—the enforcement of game laws is intrusted to incorporated associations. The Delaware Game Protective Association was incorporated in 1879 by special act of the legislature. The charter of the society conferred upon it all the powers of a modern game commission and intrusted to its care the administration of the game laws of the State. The original incorporation was limited to twenty years, but in 1899 was extended perpetually. The president and secretary of the society are the principal administrative officers, but each member is empowered by the charter to enforce the game laws and incidentally to arrest offenders. The secretary is the only salaried officer. The fees for membership constitute the game-protection fund, out of which the expenses of the society are paid.

In North Carolina and South Carolina administration of the game laws is committed to the Audubon societies, which have been incorporated by special acts of the legislatures of these States. The executive officer in each is the secretary, who, in all respects, except name, is the State game warden. He is elected by the members of the society, holds office for one year, and receives a salary which is fixed by the board of directors. The treasurer of the society, who has charge of the disbursement of State funds received from hunting licenses, is appointed by the governor. Bird and game wardens are appointed by the governors on recommendation of the secretaries of the societies. Funds for carrying on the work are derived from membership fees, subscriptions, and the fees from nonresident hunting licenses, which in North Carolina during the past year amounted to a total of about $10,700.

The plan of intrusting duties of this kind to incorporated societies has met with favor in Nova Scotia and some of the States of Australia, but in the United States has not been generally adopted. In New Jersey it proved very unpopular, and after an experience of about twenty years was abandoned. It should be explained, however, that this may have been due in part to the extraordinary powers granted the society under the act of 1873. In Delaware, for several years, an effort has been made by the members of the society to transfer the work to a regularly organized game commission on the plea that the duties could thus be more effectively performed. North Carolina was the first State to incorporate its Audubon society and confer such extensive authority upon it—a method of enforcing the game laws which in this State has survived the experimental stage and is now a demonstrated success.

STATE GAME WARDENS.

Twenty-three States and two Territories—Alabama, Colorado, Idaho, Illinois, Indiana, Iowa, Kansas, Maryland, Michigan, Missouri, Montana, Nebraska, New Mexico, New York, North Dakota, Oklahoma, Oregon, Tennessee, Texas, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming—provide for a single official to direct the affairs of the game department, the title of the office varying somewhat with each State.

The constitution of Nebraska (Art. V, sec. 26) prohibits the creation of any executive State office other than those therein mentioned and provides that duties devolving upon officers not provided for shall be performed by those already authorized. In compliance with this provision the legislature of 1901, in the act establishing a game and fish commission, declared the governor the commissioner. The actual duties of the office are, however, performed by a chief deputy, appointed by him, with headquarters in the capitol.

North Dakota formerly had a State warden, but in 1903 the legislature divided the State into two game districts and created the office of district game warden in each district. In a large State or in one of varied topography where the different sections requiring supervision are widely separated this plan has the advantage of permitting the warden to exercise a closer supervision of his territory. Thus in Colorado there are five chief game wardens, each assigned to a definite territory, and all under the supervision of the commissioner.

The office of State warden in Tennessee is a cabinet position, the department of game, fish, and forestry having been made one of the departments of the State government.[a]

The legislature of Washington in creating the office of State game warden in 1899 directed that the State fish commissioner should be ex officio warden; and in 1905 authorized him to appoint a chief deputy who should devote all his time to the game interests of the State. The magnitude of the fisheries industry in Washington and their consequent demand upon the attention of the commissioner made it necessary to relieve him of the work incident to enforcing the game laws in order to insure more efficient administration of both branches of the service.

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[a] The same is true of the office of fish commissioner in Pennsylvania.

There has been and still is much diversity of opinion as to the advantage of a single officer over a board. Minnesota at one time intrusted the warden work to a single State game warden under the act of 1887, but four years later established the present system of a board of game and fish commissioners responsible for the policy of the work, which is actually performed by an executive agent. Montana, on the other hand, in 1895, established a board of game and fish commissioners, and three years later replaced it by a State game and fish warden. New York has tried both plans, but has now placed the work in charge of a single commissioner. Prior to 1904, administration of the game laws of Vermont was committed to a commission of two members, who served without salary, but the legislature of that year abolished the old commission and reorganized the office with a single commissioner at its head. In Wyoming, after the creation of the office of fish commissioner in 1879, the legislature intrusted the duties to a board of six members from 1882 to 1884, and later returned to the original plan of placing the warden work in charge of a single officer.

Appointment.—In every State and Territory above mentioned, except Alabama, where the commissioner is elected by the people, the officer is appointed by the governor and with few exceptions confirmed by the senate.

Qualifications.—Scarcely a State prescribes any qualifications for the incumbent of the office. Colorado requires the appointee to be skilled in matters relating to game and fish; Kansas, that he shall possess the requisite knowledge of the duties of a fish and game warden, and Utah that the commissioner "shall not be a member of any hunting, shooting, or fishing club."

Office.—The office of the State warden is not always at the capital of the State. Frequently when no provision is made for him in the capitol, he maintains an office and transacts his business at his place of residence. At present the offices of the commissioners and wardens of Indiana, Iowa, Kansas, Maryland, Missouri, North Dakota, Oklahoma, Oregon, Vermont, Washington, West Virginia, and Wyoming are located at some distance from the capital.[a]

Term.—The term of office fixed by law varies from two to eight years (see Pl. III). In Colorado, Idaho, Maryland, Missouri, Nebraska, New Mexico, North Dakota, Texas, Utah, Vermont, and Wisconsin it is two years; in Iowa three years; and in Alabama, Indiana, Kansas, Michigan, Montana, New York, Oklahoma, Oregon, Washington, West Virginia, and Wyoming four years. The term of the Illinois

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[a] For addresses see Directory of State Game Officials, 1907, Circular No. 62, Biological Survey, U. S. Department of Agriculture.

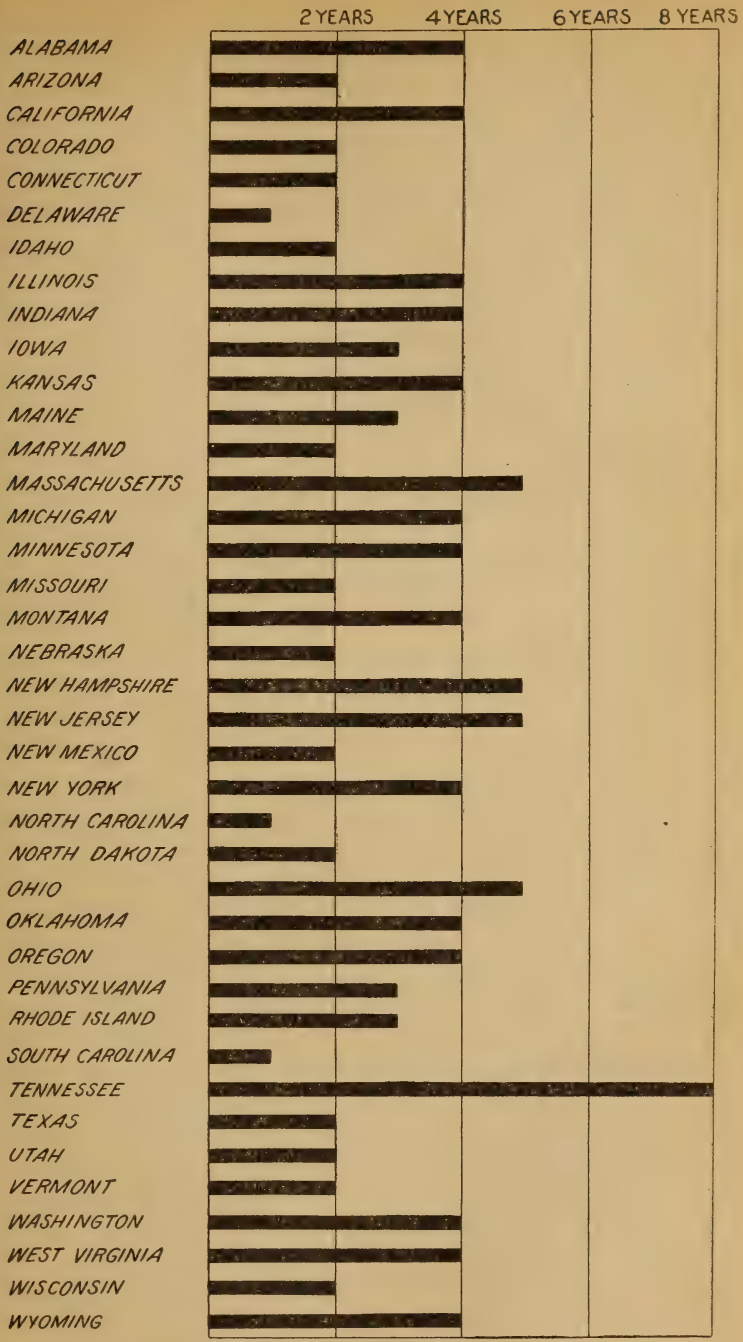

DIAGRAM SHOWING TERMS OF SERVICE OF STATE GAME COMMISSIONERS AND WARDENS.

commissioner corresponds with that of the governor appointing him, and the term of the governor is four years. One of the longest terms assigned by law for any game official in the United States is that of the game, fish, and forestry warden of Tennessee, which is eight years. Several States provide that the State official may be removed by the governor for good cause, but the Wyoming act declares that before removal the State game warden shall be heard in his own defense.

Bond.—Unlike members of game commissions, the single officers in charge of game departments, except in a few instances, are required to give bond, conditioned usually upon proper and faithful discharge of their duties and accountability for any funds coming into their hands. In Michigan the liability upon the State game and fish warden's bond extends also to indemnity for all wrongful acts of the warden and his deputies while acting officially. The amounts of these bonds vary from $10,000 to $500; New York, $10,000; Alabama, Colorado, Idaho, Michigan, Oregon, Utah, and Washington, $5,000; Montana and Wyoming, $3,000; Indiana and New Mexico, $2,000; North Dakota, $1,000, and Tennessee, $500. No bond seems to be required in Illinois, Iowa, Kansas, Maryland, Oklahoma, Vermont, West Virginia, and Wisconsin unless by general statute or constitutional provision.

Compensation.—In every State and Territory except North Dakota, Oklahoma, and Tennessee, the State or Territorial warden or the executive officer of the commission receives a salary usually commensurate with the services rendered. (See Pl. IV.) North Dakota allows the district game wardens 30 per cent of the hunting license fees collected in their respective districts.[a] Oklahoma allows the Territorial warden one-half of the fees ($25 in district courts and $10 in justice courts) taxed as costs against defendants in every conviction; but in Tennessee the State warden not only serves entirely without salary, but advances the money necessary to carry on the office.[b] New York, on the other hand, pays the forest, fish, and game commissioner $5,000 a year and necessary expenses. In ten other States the salaries of the chief game officials are $2,000 or more—$2,500 in Alabama, Illinois, Minnesota (executive agent), Massachusetts (chairman), and Texas; $2,400 in Montana; $2,000 in Maine (chairman), Michigan, Missouri, and Washington. In four other States—Colorado, Idaho, New Mexico, and Wisconsin—the salaries are $1,800; in three—Kansas, Nebraska, and Wyoming—$1,500; in five—Indiana, Iowa, Maryland, Oregon, and Utah—$1,200; and in two—Vermont and West Virginia—$1,000. Nearly every State and Territory allows its warden an amount for expenses. The following table shows the titles of the officials, their terms of office, salaries, and amount and character of expenses allowed.

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[a] The amount collected in the two districts in 1905 was $12,290.

[b] In his report to the legislature of 1907 the warden states "the facts are that your State warden has served the State for four years *without salary* and in the meantime advanced from his private means . . . the sum of $5,000."

State Game Commissions and Wardens.

State.	Title.	Term (years).	Salary (per annum).	Expenses (per annum).	Payable from—	Remarks.
Alabama	State game and fish commissioner	4	$2,500	(a)	Game protection fund.	
Arizona	Fish and game commissioners	2		(b)		
California	Board of fish commissioners (3)					Term, pleasure of governor.
Colorado	State game and fish commissioner	2	1,800	$600	General fund	
Connecticut	Commission of fisheries and game (3)	2	(c)	200	do	Salary payable only while actually serving.
Delaware	Delaware Game Protective Association					Membership fees used to pay expenses of association.
Idaho	Fish and game warden	2	1,800	1,000	Game protection fund.	
Illinois	State game commissioner		2,500	(d)	do	Term, incumbency of the governor appointing.
Indiana	Commissioner of fisheries and game	4	1,200	1,200	General fund	
Iowa	State fish and game warden	3	1,200	(e)	do	
Kansas	do	4	1,500		do	
Maine	Commissioners of inland fisheries and game (3)	3	1,000–2,000		do	Chairman and land agent, $2,000; third commissioner, $1,000.
Maryland	Game warden	2	1,200	600	do	
Massachusetts	Commissioners of fisheries and game (3)	5				Salaries and expenses not prescribed by statute.
Michigan	Game and fish warden	4	2,000	(f)	Game protection fund.	
Minnesota	Board of game and fish commissioners (5)	4	2,500	(f)	General fund	Executive agent; others receive expenses only.
Missouri	Game and fish warden	2	2,000	2,000	do	
Montana	State game and fish warden	4	2,400	2,000	do	
Nebraska	Game and fish commissioner [g]	2	1,500	500	do	Chief deputy.
New Hampshire	Board of fish and game commissioners (3)	5	800–1,000	(f)	do	Chairman, $1,000; others, $800.
New Jersey	Board of fish and game commissioners (4)	5	1,200	200	do	Salary that of chief protector; members receive expenses only.
New Mexico	Game and fish warden	2	1,800		do	
New York	Forest, fish, and game commissioner	4	5,000	(f)	do	
North Carolina	Audubon Society of North Carolina	1	1,800	(f)	Game protection fund.	Secretary only.
North Dakota	District game wardens (2)	2	(h)		Game protection fund.	
Ohio	Commissioners of fish and game (5)	5	1,500	(i)	General fund	Chief warden; members receive expenses only.
Oklahoma	Territorial game and fish warden	4	(j)			Fee of $25 in district court and $10 in justice court in every conviction, one-half of which is paid to warden.
Oregon	Game and forestry warden	4	1,200	500	General fund	
Pennsylvania	Board of game commissioners (6)	3		(f)		Chief protector receives salary.

Rhode Island	Commissioners of birds (5)	3		(*f*)		$300 appropriated in 1907.
South Carolina	Audubon Society of South Carolina	1			Game protection fund.	
Tennessee	State warden	8				
Texas	Game, fish, and oyster commissioner	2	2,500	600		$700 of commissioner's salary and all of chief deputy's ($1,800) from game fund.
Utah	State fish and game commissioner	2	1,200	300	Game protection fund.	
Vermont	Fish and game commissioner	2	1,000	(*f*)	General fund	
Washington	State fish commissioner and game warden	4	2,000	1,000	do	Chief deputy, in charge of game, salary $1,500, expenses, $750.
West Virginia	Game and fish warden	4	1,000	(*k*)	do	
Wisconsin	State warden	2	1,800	(*d*)	do	
Wyoming	State game warden	4	1,500	200	do	

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a Included in salary.
b Hunting license fees.
c $3 a day.
d Actual.
e Indefinite.
f Necessary.
g The governor is nominally commissioner; office conducted by chief deputy.
h 30 per cent license fees and part of fines.
i All.
j Fees.
k Mileage.

Most of the States provide the commissioner or warden with an office in the State capitol, equipped with suitable furniture, stationery, and other facilities, and Maine several years ago made an appropriation of $1,000 for preparing in the office of the commission an exhibit of the native mammals and birds as a nucleus of a State museum.

Several States allow their officers certain specified clerical or other assistants, as follows: Alabama, clerk; Colorado, clerk at $1,000 a year; Idaho, clerk at $1,000; Illinois, not more than 10 assistants; Montana, clerk at $1,200 per year; Vermont, clerk at $365 a year.

Duties and powers.—The duties of these officials vary slightly in each State, but on the whole they aim at the same result—the conservation of game for the purpose of furnishing both recreation and a valuable food supply, and of nongame birds for economic and esthetic reasons. In all the States except Illinois and North Dakota the duties cover the protection of fish as well as game. Both duties and powers will be further considered in connection with administrative provisions with which they are closely interwoven.

COUNTY WARDENS.

Five southern and two western States—Florida, Georgia, Kentucky, Louisiana, Mississippi, Nevada, and South Dakota—still adhere to the county warden system and rely exclusively on local officers for the enforcement of their game laws. In five of these States wardens are appointed only upon petition of a certain number of citizens of the county—in Florida from 75 freeholders; in Georgia from 50 freeholders; in Mississippi from 10 reputable citizens; in Nevada from 20 taxpayers; and in South Dakota (for big-game wardens) from 10 citizens.

Appointment.—In Florida and South Dakota appointments are made by the governor; in Georgia by the judge of the superior court; in Kentucky by the county judge; in Louisiana by the police jury; and in Mississippi and Nevada by the county commissioners or supervisors. In Louisiana and Mississippi wardens have no jurisdiction over fish matters, and in South Dakota (which provides for the appointment of game wardens only in counties where big game exists) the enforcement of the laws for protection of small game is left to the fish wardens. Kentucky and Louisiana authorize the appointment of one or more county or parish wardens, while the other States restrict the number to one in each county. Kentucky, Louisiana, Nevada, and South Dakota place no limit on the term of service, but Mississippi fixes the term at four years and Florida at two years. In Florida, Kentucky, Nevada, and South Dakota the wardens are required to give bond. Georgia also provides for wardens to protect nongame birds exclu-

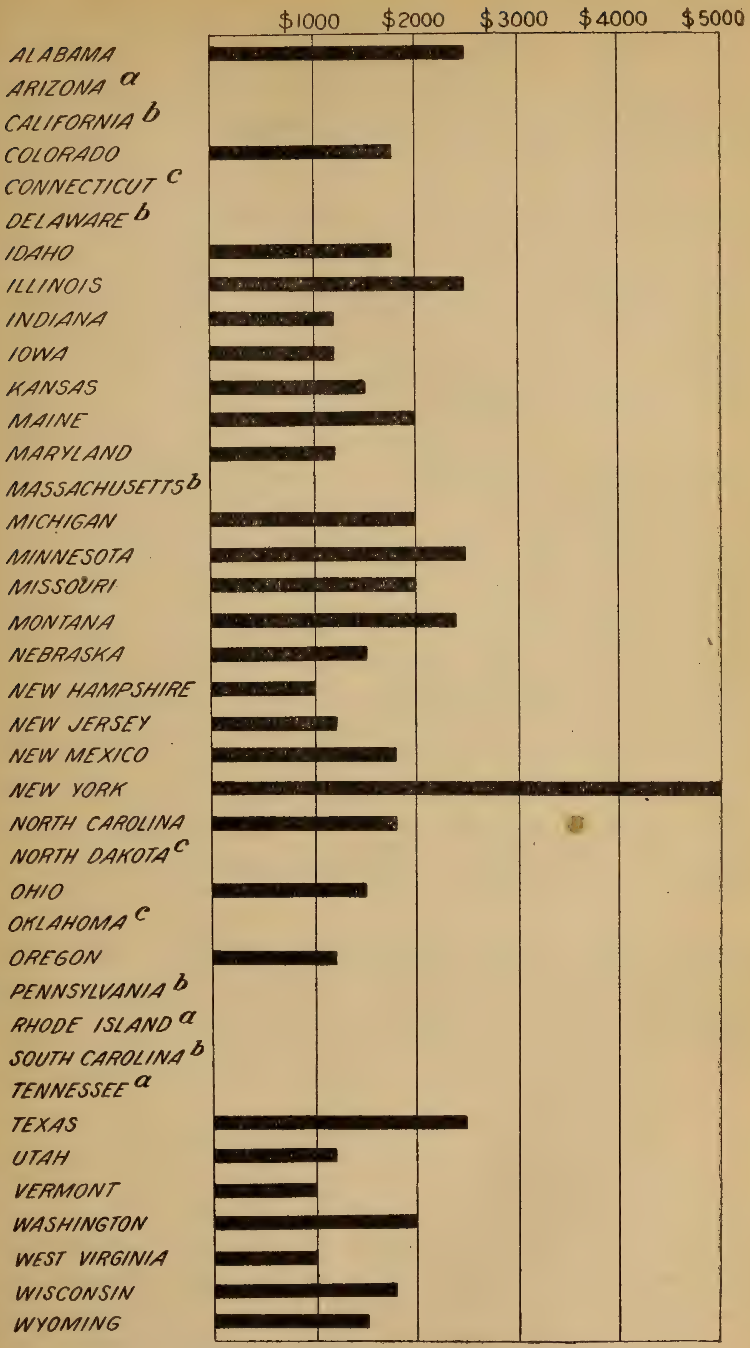

DIAGRAM SHOWING SALARIES OF STATE GAME COMMISSIONERS AND WARDENS.

a. Serve without salary. *b.* Salary not stated in law. *c.* For details as to compensation see table, pp. 22, 23.

sively. These wardens (there may be one or more in each county) are appointed by the judge of the superior court for an unlimited term and have the same powers as a sheriff in making arrests.

Duties and powers.—The county warden is usually empowered to appoint a sufficient number of deputies to assist in enforcing the law. His chief duty is to detect violations and institute prosecutions by filing complaints.

Compensation.—The big-game wardens in South Dakota are allowed $75 a month, payable from the game fund of the county, but most States that have county wardens allow them very meager compensation. Nevada restricts the amount to $20 and Florida to $60 a month, and several States allow percentages of fines or the usual criminal fees. In Florida, Mississippi, and South Dakota funds for payment of county wardens and for expenses in enforcing the game laws are derived from the fees for hunting licenses.

In addition to the foregoing class of wardens, it remains to mention the county wardens in three States, who, while not the sole game officers, are more or less independent of the State department. The county supervisors in California are authorized to appoint a game warden for their county. This warden is directly amenable to the board of supervisors. His salary is graduated according to the population of the county, from $50 to $125 a month, payable from the county treasury, and each warden is allowed $25 a month for expenses.

The county commissioners in each county in Washington are authorized to appoint a county game warden and must do so upon request of 100 freeholders or taxpayers. The salary, which is payable from the county game fund, is determined by the county commissioners, but can not be less than $25 or more than $100 a month. The county warden is authorized to appoint special game wardens, but they receive no salary.

In Wyoming the county commissioners of each county may appoint a game warden for the county. This warden is entirely under the control of the county commissioners and is allowed such compensation as the county commissioners may determine, to be paid out of the funds at their disposal.

DISTRICT AND CITY WARDENS.

In the District of Columbia the enforcement of the game laws is intrusted to the police department, the work being placed in charge of the superintendent of metropolitan police, who has at his disposal the sum of $500, appropriated for this purpose each year by Congress. The superintendent of police is also the game warden of the local game protective association and performs all the duties usually assigned to a commissioner or State game warden.

In Virginia each city may have 2 wardens and each magisterial district 1 upon application of 5 resident freeholders. The city wardens are appointed by the city or corporation court and the district wardens by the circuit judge. Special provision requires, however, that in Accomac and Northampton counties the wardens are to be 'appointed on the recommendation' of the Eastern Shore Game Protective Association, to which they make their report and by which they are paid out of the returns from hunting license fees. The term of the city and district wardens is four years and the compensation not to exceed $300 a year, paid from hunting license fees. Beside these regular wardens the commanders of the oyster police boats are constituted game wardens, and in addition to their duties in this capacity are required not only to enforce the game laws of the State, but also to execute the laws of the United States relating to the protection of game.

SUBORDINATE OFFICERS.

The-operations of the game department can scarcely result in substantial success without the assistance of local officers, each with a limited territory over which strict surveillance can be maintained. This is as true as the converse of the statement, that local officers without a central head rarely do effective work. Most of the States and Territories have provided local officers of varying titles, whose number and terms of service depend largely upon the ability of each State to provide means for payment. The highest salary paid deputy game wardens in this country is $1,500 a year, which is allowed the special deputies in Montana, who are allowed also $300 a year for traveling expenses. As these wardens hold office for four years, it will be seen that the position is one of standing and of adequate compensation. From this maximum the amounts received grade downward to the scanty allowance of criminal fees, and finally to service without any compensation in several States. The meager compensation resulting from the percentage of fines secured sometimes allowed deputy wardens is hardly sufficient to enlist the services of active men, and the scheme adopted in a few States of paying deputies a per diem amount while actually performing service seems a better method where funds are insufficient to keep these officers constantly employed.

The sources and methods of appointment of the subordinate wardens vary widely, but more satisfactory results seem to follow appointment by the State game department or official, to which they are thus made directly amenable and by which they can be removed in case of incompetency or dereliction of duty. By this method also appointments are removed from local and political influences and the warden is untrammeled by any such considerations.

A number of States have provided several classes of wardens, from district warden, with supervision over a large part of the State, to deputy county warden, or one with even more restricted territory. California, Colorado, Illinois, Maine, Maryland, Montana, Vermont, and a few other States vest their wardens, or some of them, with jurisdiction over the whole State, and it is evident that such a system may be productive of much good. With powers restricted to one county, as is the case in several States, it sometimes happens that violators escape simply because the warden can not follow them outside of his own limited territory. The Colorado scheme of warden service seems well adapted to the needs of game protection and has the advantage of feasibility in States where funds are insufficient to keep an adequate number of wardens employed during the entire year. There is a deputy State game and fish commissioner, at a salary of $1,500 per annum. Five chief wardens are appointed by the commissioner, at a salary of $900 a year and an allowance of $300 a year for traveling expenses, with jurisdiction over the whole State. The next grade includes deputy game wardens, the number not to exceed ten at any one time. These are appointed by the commissioner for a limited period, are allowed $100 a month while actually employed, and have jurisdiction coextensive with that of the chief game wardens. Next in order are the special game wardens, appointed by the commissioner, who receive no stated salary, but are entitled to certain fees and perquisites. The fourth class consists of licensed guides, who have the powers of deputy wardens.

In Alabama the State game commissioner may appoint a warden in each county, whose term is four years, with allowance of one-half of all fines, penalties, and forfeitures collected under the game laws in his county.

In California the board of fish commissioners may appoint a chief deputy and other assistants, with jurisdiction extending over the entire State and compensation assigned by the board and paid from the appropriations allowed that branch of the State government. The county wardens, as already explained, are not directly connected with the State board of fish commissioners, but work in cooperation with it.

In Connecticut the commissioners of fisheries and game appoint a warden for each county, who serves for two years. The county warden may appoint 10 and not more than 20 special fish and game wardens for his county, to serve during his pleasure. The county warden and his appointees receive no salary, but are entitled to a fee of $20, taxed as costs and collected from the defendant in every conviction.

The State warden of Idaho, like those of several other States, has authority to appoint a chief deputy at $1,200 a year, two assistants and a clerk at $1,000 a year each, and on petition of 10 or more resident taxpayers as many deputies as may be necessary in each county. The chief deputy, assistants, and clerk are under bond of $3,000 each, and the chief deputy and assistants are entitled to traveling expenses not exceeding $600 each. Each county deputy is under $500 bond, is allowed traveling expenses when sent outside his district, and receives $3 for each day of actual service, not exceeding, however, 150 days in any one year.

In Illinois 16 game wardens are appointed by the commissioner, with power to act anywhere in the State. Each receives a salary of $900 a year and actual expenses while under direction of the commissioner. There may be 3 deputy wardens for each county, appointed by the commissioner, with jurisdiction over the entire State. They receive for their services $2 a day while actually employed and one-half of all fines resulting from complaints filed by them. The commissioner may also appoint as many special deputy wardens as necessary, who are allowed one-half the fines recovered when they file the complaints.

The deputies in Iowa are appointed by the State warden. They receive no salary, but are allowed a reasonable compensation in the judgment of the county supervisors, to be paid from the county treasury, and when they are informants are entitled to a fee of $5, in each instance, to be collected, in case of conviction, from the defendant.

In Kansas the deputies are appointed by the State warden, one or more for each county, upon request of 10 or more resident taxpayers. As compensation each receives a fee of $10, collected as costs from the defendant for every arrest resulting in conviction.

The fish and game wardens in Maine are appointed by the governor, upon the recommendation of the commissioners of inland fisheries and game, to serve for three years; but the deputy game wardens are appointed directly by the commissioners, who also fix their compensation.

The only subordinate wardens authorized in Maryland are the deputy game wardens, who are appointed by the governor upon the recommendation of the State warden. They may be appointed for the whole State or for a specified locality, and receive such compention as they and the State warden may agree on, payable from fines collected for violation of the game laws.

The deputy warden system of Michigan is somewhat more elaborate than those of most States. The State warden appoints a chief deputy, who receives a salary of $1,500 and exercises the functions of the office in the absence of the State warden; not more than 10 deputy game wardens, at a compensation of $3 for each day of actual service and with jurisdiction over the entire State; and from one to three county game and fish wardens for each county, subject to his control, but with jurisdiction limited to the county, and compensation fixed by the county supervisors. A novel feature of the Michigan law is a provision permitting the Audubon Society of that State to name four deputy wardens (whose territory is determined by the society) to have the powers of other deputies, but to serve without compensation from the State or county.

The number of prosecutions for violations of the game laws of Minnesota and the variety of questions involved in the cases that reach the supreme court of the State indicate a successful administration of these laws, and in this connection it may be significant that the board of game and fish commissioners is given freer hand than in most States. Enforcement of the game laws is intrusted to the executive agent, whose powers, compensation, and duties have already been explained (see p. 18), to wardens placed under the supervision of the executive agent. These wardens are appointed in such number, at such compensation, and for such terms as the board considers necessary.

The State warden of Montana is authorized to appoint not less than 5 nor more than 12 special deputies, having jurisdiction over the entire State, for a term of four years and at a salary of $1,500 per annum and the fees allowed sheriffs in criminal cases. He may also appoint deputies with the same powers as those exercised by special deputies.

There seem to be no regularly and permanently employed deputies in New Hampshire, the board of fish and game commissioners being empowered to appoint 'special detectives in cases of prosecution relating to fish and game.' The compensation of these appointees is paid by the board from the fish and game fund.

The number of deputies authorized in New Jersey is large, when the size and position of the State are considered. The board of fish and game commissioners may appoint 25 fish and game wardens, one to be chief game protector and exercise supervision over the others, and it may also appoint as many deputy fish and game wardens as are deemed necessary. The salary of the chief protector is $100 a month, and that of each of the fish and game wardens $50 a month; the deputy wardens receive no salary, but are entitled to fees collected in prosecutions by them.

The New York system is very similar. The commissioner of forests, fish, and game appoints 75 game protectors, who hold office during his pleasure. One is appointed chief protector, with supervision over the others, at a salary of $2,000 a year with a provision for an increase of $500 at the expiration of five years of service; he is also allowed $1,000 a year for traveling expenses. Three of the protectors are appointed assistant game protectors, the first assistant at a salary of $1,400 per annum and the second and third at $1,200 each, with an allowance of $750 a year for traveling expenses. The other protectors receive $600 a year as salary, $450 for expenses, and one-half the fines recovered upon information furnished by them. They are required to report monthly to the chief protector. The commissioner may also appoint special game protectors when such action is recommended by the supervisors of any county or by a game club. These special protectors have all the powers of game protectors except that of searching without warrant, but receive no compensation from the State.

The secretaries of the Audubon societies in North and South Carolina select the bird and game wardens and the governors appoint them. Their compensation is fixed by the secretaries and paid out of the funds at the societies' disposal.

Ten game protectors are authorized by law in Pennsylvania, one of whom is designated by the board which appoints them, as chief protector and secretary of the board. The chief protector has supervision over the others. They receive salary or per diem as the board may agree with them, payable from funds appropriated for game protection. The board may also appoint one deputy game protector for each county, whose powers are the same as those of the protectors, but whose compensation consists of the fees usually allowed constables for performing similar services. As many special deputy game protectors as are necessary may also be appointed by the board without compensation.

In Texas the State game, fish, and oyster commissioner may appoint a chief deputy commissioner, at a salary of $1,800 per annum and expenses, and deputy commissioners who receive $3 a day while actually employed and are allowed their necessary expenses, all to be paid from the game-protection fund.

Vermont provides one or two county wardens for each county, appointed by the game commissioner at a compensation of $2 a day and expenses while actually employed. Deputy county fish and game wardens, as many as are necessary, may also be appointed by him at a compensation of $1.50 a day and necessary expenses while officially employed.

The State warden of Wisconsin, with the approval of the governor, is authorized to appoint two or more special deputy wardens in each Congressional district at a per diem compensation determined by him and payable from the hunting-license fund for time actually spent in service. The county board of any county may authorize the appointment of county wardens and limit the number thereof, such wardens to be selected by the board of appointment of the county and appointed by the State warden at a compensation determined by the appointing board and paid from the county treasury. All game wardens are now required to pass a competitive examination in accordance with the general civil-service law of the State.

In Wyoming the State warden appoints three assistant game wardens, who receive a salary of $900 a year each. He may also appoint one or more special assistant game wardens for each county, paid from the game fund, at $3 a day for the time actually employed.

SPECIAL LOCAL OFFICERS.

The region at the head of Chesapeake Bay and about the mouth of the Susquehanna River in Harford and Cecil counties, Md., known as the 'Susquehanna Flats,' has in the past been famous for the number and variety of its wild fowl. Enormous numbers of ducks have been killed for market on these noted ducking grounds, and many persons have resorted to them for sport and recreation. The importance of the Susquehanna Flats has caused the enactment of an elaborate system of ducking laws. Beginning in 1872, the Maryland legislature committed the enforcement of these laws to a board of special police, composed of three members, appointed by the governor, two of which were from Harford County and one from Cecil County. They were invested with power to appoint deputies and make arrests without warrant, and were allowed a compensation determined by the circuit judge and paid from hunting-license fees. The act creating this board has been variously amended from time to time, but the substantial provisions of the original measure are still in force. The board now consists of four members, two from each county.

In 1884 the Maryland legislature enacted a law requiring the governor, with consent of the senate, to appoint a special policeman for the protection of wild fowl on the Elk and Bohemia rivers in Cecil County. This officer was vested with powers very similar to those of the ducking police on the Susquehanna Flats. The act was superseded in 1894 by another of like import, providing for compensation at $50 a year, payable from the county funds. The law of 1894 is still in force.

South Carolina has a system of inspectors, authorized by act of 1905, for enforcement of the game laws on the public lands and navigable waters of the State. These inspectors are appointed by the county commissioners of each county in which the law is applicable, receive 10 per cent of the hunting-license fees and fines collected in the county under the act, and are vested with powers to arrest without warrant persons found in the act of violating the law.

OTHER OFFICERS.

Nearly every State and Territory requires the sheriffs, constables, and police officers to enforce the game laws. Several impose certain features of enforcement upon market masters, coroners, and marshals, and Indiana places the duty of enforcement on road supervisors, under penalty of $5 to $25 for nonperformance, and with a fee of $5 for the service when rendered, to be taxed as costs against the defendant on conviction. In Massachusetts members of the district police and all officers qualified to serve criminal process have authority of commissioners and deputies in arresting violators and executing search warrants. Guides and packers are required to be deputy game wardens in Montana and ex officio assistant game wardens in Wyoming. Members of incorporated game societies in New Jersey have power to institute prosecutions and to make arrests without warrant. In Vermont town grand jurors are required to prosecute violators. In Virginia commanders of the oyster police boats are made game wardens, as already explained (see p. 26), and are required to report all prosecutions to the board of fisheries. By act of Congress officials of the Forest Service are required to aid in the enforcement of game laws, and forest rangers of the Federal Government are by State law made ex officio game wardens in Washington, have powers of deputy game wardens in Colorado, and may be appointed special assistant game wardens in Wyoming.

The Alaska game law requires all marshals, deputy marshals, collectors of customs and their deputies, and officers of revenue cutters to enforce the law.

In several States police and peace officers are declared to be ex officio game wardens and are invested with the same powers as game wardens. In Pennsylvania the State constabulary are required to enforce the game laws. Wardens in several States have much more extensive police powers in performing their official duties than sheriffs, constables, and peace officers are allowed to exercise in connection with their own functions. Thus in Montana these local officers can not seize without warrant as wardens can, and in New York they have not the right of search without warrant conferred on protectors. A provision investing local officers with the powers of game wardens is therefore calculated to increase the game warden force without additional expense to the State. In some States sheriffs and other officers are allowed the same fees that are prescribed for the wardens and share in the division of fines. But despite the fact that the powers and duties of wardens are bestowed upon these regularly constituted peace and executive officers with great particularity and detail, scarcely any assistance is rendered the game departments by them. So conspicuous was the failure of a provision of this character in Missouri, under the act of 1905 creating a game department, that the State warden in his first report makes the following statement:

> One provision of the game and fish law constitutes sheriffs, marshals, constables, and all peace officers ex officio game and fish wardens, and charges them with the same duties, and under like penalties for violation of duty, as are by law imposed upon the State game warden and his commissioned deputies.
>
> It was very much hoped that this provision of the law would prove a very great aid and furnish valuable allies to the game warden's corps of deputies in bringing about the law's enforcement, especially in remote places difficult of access to regularly commissioned deputies. With this hope and end in view this office, at the expense of considerable labor and time, procured, by correspondence with all the county clerks, the names and post-office addresses of all the constables and justices of the peace in the State, aggregating in all some 4,000 such officers, to all of whom we mailed copies of the game law, and addressed them personal letters calling atten-

> tion to the provisions of the law by which they were constituted ex-officio game and fish wardens and charged with the same duties and liabilities as commissioned game wardens, respectfully invoking their aid and cooperation in game and fish protection.
>
> Like letters to those sent justices of the peace and constables, with copies of the game and fish laws, were addressed to sheriffs of the various counties, asking them to instruct their deputies of their added duties under the law, and especially asking them, as the chief executive officers of the counties, to give this provision special attention.
>
> We regret to say that for some reason we have not received from this source the aid that we anticipated or had a right to expect. Strange to say, that of the many violations of the law that must have occurred throughout the State, and of the many prosecutions that have been begun, very few have been originated by the activity or vigilance of ex-officio game and fish wardens. (Rept. State Game and Fish Warden of Missouri for 1905, pp. 24–25.)

Much the same results have been experienced in other States. The general consensus of opinion is that local officers elected by the people can not be expected to perform successfully the duties of game wardens, but such work must be done by officers *appointed* by a State official or board, who are not dependent upon local favor to hold their positions, and who, by serving at a distance from their place of residence, are free from local influence.

GAME PROTECTION FUNDS.

The problem of providing funds for the support of a game department or system has puzzled those interested in the preservation of game ever since the necessity for such preservation arose. In many States it has been found well-nigh impossible to secure legislation providing for the appropriation of money, no matter how little, for the preservation of game. The sentiment to which this condition is due still prevails in a large part of this country, particularly in the South. The creation of new offices, with salaries attached, is regarded with great jealousy and disfavor. In the early history of the movement for game protection the only provision considered feasible for payment of officers charged with the duty of enforcing the game laws was an allowance of whole or part of the fines. A system maintained on such an unsatisfactory and unstable basis, however, accomplished almost nothing, and the advocates of better protection set about to devise a more satisfactory means. This resulted in the creation of a game protection fund composed of fees derived from hunting licenses and other returns from enforcement of the game laws, thus placing the department or office upon a self-sustaining basis. Aside from the provision contained in the game laws of New York in 1879, authorizing the board of supervisors of each county to levy a tax sufficient to raise $1,000 a year for the purpose of enforcing the laws, and a similar provision in the Montana laws of a few years ago, there seems to be no instance of a specific authorization to any agency of a State government to levy a tax on property for the maintenance of a warden service. The provision in the Montana law (Laws of 1901, H. B. 147, sec. 15) required the board of county commissioners of each county, at the time of levying the annual tax, to levy also a tax of one-tenth of a mill upon the assessed valuation of all property in the county to be paid to the State treasurer. The money thus arising, together with that received from the enforcement of the game laws, was to constitute a fish and game fund, and was to be used in defraying the salaries and expenses of the State and local wardens. This law remained in effect until 1905, when it was repealed, doubtless because the funds arising from other sources were sufficient to meet the expenses of the department.

The final solution of the problem of supporting a game department without taxation of property or appropriation of funds from the general treasury has been found in the hunting license system. Since the first adoption of the plan of requiring every nonresident to pay a fee for the privilege of hunting, nearly every State has established either a State or county wardenship. Within a few years the plan of requiring residents to secure licenses has been adopted by 19 States, and in spite of the small license fee large incomes have been derived from this source. The prejudice against requiring a resident or citizen of a State to pay any fee, however small, for the privilege of hunting is gradually disappearing, and doubtless the change in sentiment will result in the establishment of State service in the remaining States, mostly Southern, where no such system now prevails.

The license system, as a source of revenue for the maintenance of the game department, may well be considered to have originated in 1895, but of the four States adopting the system in that year only two, Michigan and North Dakota, directed the funds to be applied to game protection.[a] The Michigan license was required for hunting deer only; the fee was $25 for nonresidents and 50 cents for residents, and the receipts from the nonresident licenses were equally divided between the State and the county of issue. The county funds thus obtained were applied by the county commissioners to the protection of game, and the State funds were used for payment of salaries of the State warden and his deputies. By some oversight, no provision was made for the disposition of the resident license fees, and notwithstanding the opinion of the attorney-general, furnished upon request of the State warden, that these fees should be distributed in like manner as the nonresident fees, the county clerks refused to so dispose of them, contending that such fees were rightfully theirs as compensation for services rendered in issuing the licenses. Under the first year's operation of this law 22 nonresident and 14,477 resident licenses were issued. The legislature of 1897 increased the resident license fee to 75 cents, rectified the omission in the law of 1895, and remodeled the scheme of disposition of fees by allowing the issuing clerk 25 cents of every fee as his compensation, the county supervisors 25 cents of the resident-license fee for enforcement of the game law in their respective counties, and the State treasurer the remainder of all fees, for payment of salaries and traveling expenses of the State warden and his deputies. In the first year of the existence of this law there were issued 11,867 resident and 44 nonresident licenses, the receipts from which provided a State game fund of $4,055.75 and a county game fund of $2,966.75, or a total of $7,022.50. For the time covered by the foregoing figures, 1897, the total expenses of the State game warden's office were $6,444.08; hence the receipts from the license system alone (in addition to $6,208.32 collected in fines) were more than sufficient to meet the salaries and all expenses of the State game department and its deputy wardens. Had the license system been general and not restricted to deer alone it is evident the receipts from this source would have been much greater. In this connection it is interesting to note the volume of work (which can be presented in figures) accomplished during the year 1897. There were 920 violations[a] investigated, 597 prosecutions begun, and 483 convictions secured, which resulted in the collection of $6,208.32 as fines.

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[a] The other two, Minnesota and Wyoming, required only nonresident licenses. One of the principal objects of the Wyoming license was to prevent nonresident Indians from hunting in the State. (See Recreation, Vol. 12, p. 443, June, 1900.)

The North Dakota law of 1895 established both resident and nonresident licenses, 50 cents and $25, respectively, and directed that one-third of all sums from this source should be paid the State game warden as his compensation and that two-thirds should be paid into the county treasury as a county game fund to be used for game protection. This law has recently been somewhat changed, but the greater part of the fund arising from the sale of licenses is still applied to game protection.

Since 1895 the value of the license system as a means of furnishing funds for the support of game protection has received general recognition. This object is clearly and unequivocally stated in the Illinois law of 1903:

> SEC. 25. For the purpose of increasing the State game protection fund and preventing unauthorized persons from killing game and birds, no person or persons shall at any time hunt, pursue or kill, with gun, rabbits or any of the wild animals, fowl or birds that are protected during any part of the year, without first having procured a license so to do, * * *

The amount collected from this source by Illinois is so large—$127,988 in 1905—that such a declaration of object becomes important.

Indeed, so successful has the system generally proved as a means of raising funds for game protection that a number of States have erected upon this foundation elaborate State departments of game or game and fish. Alabama, Idaho, Illinois, Michigan, Montana, North Carolina, North Dakota, South Carolina, Utah, and Wisconsin support their game departments wholly by means of the funds derived from licenses and, in some instances, all or part of the fines resulting from convictions.

The following table shows briefly the disposition made of hunting-license fees in States where licenses are issued:

Special Disposition of Hunting License Fees and Fines.

State.	License Fees.	Fines.
Alabama	State game and fish protection fund.	State game and fish protection fund.
Arizona	Use of fish and game commissioners.	Half to informer, half to school fund.
Arkansas		Officer making arrest and securing conviction.
California	State game preservation fund	State game preservation fund.
Colorado	Nonresident fees and, when collected by commissioner, resident fees to State game fund; resident fees collected by county clerk, half to State game fund, fourth to county, and fourth to clerk.	Third to State game fund, third to prosecutor, third to county.
Connecticut	Game protection fund	Imposed by justice of the peace, to town; otherwise, to State.
Delaware	To Delaware Game Protective Association.	Less expenses to Delaware Game Protective Association, except under license act, as follows: Half to prosecutor, half to the association.

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[a] These figures include fish cases also, as the State warden was likewise charged with the enforcement of laws protecting fish.

Special Disposition of Hunting License Fees and Fines—Continued.

State.	License fees.	Fines.
Florida	County game fund. If no warden in the county, to fine and forfeiture fund.	Third to informer (half if he be a warden), balance to fine and forfeiture fund.[a]
Georgia		Half to game warden securing conviction.
Idaho	State fish and game fund	State fish and game fund.
Illinois	State game fund	Half to deputy warden or person filing complaint, half to State game fund.
Indiana	State fish and game fund	
Iowa	County game fund	
Kansas	State game fund	
Kentucky	General expense fund	Less expenses to warden prosecuting, or half to informer.
Louisiana	State game fund	State game fund.
Maine	do	Do.
Maryland	Local laws; usually to county school fund.	Less expenses to warden prosecuting; otherwise half to informer, half to county school fund.
Massachusetts	State	Half to complainant, half to State; if complainant be a deputy of the commissioners, whole to the State.
Michigan	State game fund	
Minnesota	do	General revenue fund of the county.
Mississippi	County forest and game protective fund.	County forest and game protective fund, but informant entitled to half.
Missouri	County treasury for roads	Half of fine for trespass paid to owner of land securing conviction.
Montana	State game fund	State game fund.
Nebraska	State school fund	County school fund, but complaining witness entitled to an equivalent of half from general county treasury.
Nevada		School fund.
New Hampshire	State game fund	State game fund.
New Jersey	Use of fish and game commissioners	Third for use of fish and game commissioners, third to complainant, third to persons furnishing evidence.
New Mexico		Half to deputy game warden prosecuting; half to county school fund.
New York	State	For use of forest, fish, and game commissioner; person, game society, or corporation or officer furnishing evidence or instituting prosecution entitled to half.
North Carolina	State game fund	
North Dakota	40 per cent to deputy game warden of county, 30 per cent to district game warden, 20 per cent to general State fund, 10 per cent to auditor of the county.	
Ohio	Use of commissioners of fish and game.	For use of commissioners of fish and game;[b] prosecuting attorney 20 per cent where he conducts prosecution.
Oklahoma		
Oregon	State game fund	Less expenses, half to informer or person bringing action, except wardens, half to State.
Pennsylvania	Half for use of board of game commissioners, half to county.	For use of board of game commissioners when prosecutor is a protector or deputy; half to informer, half to board for violation of license law.
Rhode Island	State	Half to complainant, half to State.
South Carolina	State game protection fund	State game protection fund.
South Dakota	County game fund	Small game, half to warden or officer instituting prosecution or to informer; half to county game fund; big game, county game fund.
Tennessee	Use of State game warden	Half to warden procuring conviction or making arrest, and half to State warden.
Texas	State game protection fund	State.
Utah	do	County; but informers in cases of violation of law protecting big game and introduced birds entitled to half.
Vermont	State game fund	State game fund.
Virginia	Payment of wardens' salaries	State.
Washington	Collected by State auditor, to State game fund; collected by county auditor, to county game fund.	County game fund.
West Virginia	State	Deputy warden prosecuting.[c]
Wisconsin	State game fund	Third to county game fund.
Wyoming	State	General school fund.

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[a] This scheme of disposition of fines is void, as the constitution requires all fines to be paid into the fine and forfeiture fund.

[b] Commissioners may direct that fines collected upon prosecutions by deputy State wardens be paid to them.

[c] Suit is now pending in the supreme court of the State to determine the legality of this disposition of the fines.

In Washington the division of game protection, somewhat separated from the fish department by the act of 1905 but still under the control of the State fish commissioner, is maintained exclusively by the license fees paid into the State treasury; and the fees paid into the county treasury are used for game protection in the county. In Idaho, just prior to the session of the legislature in 1905, opposition to the maintenance of a State game department supported by appropriations from the general treasury of the State threatened the abolition of the warden system. Anticipating this contingency, the advocates of a State office drafted a new bill covering the entire field of game protection, from the establishment of a State wardenship to the minutest detail of close seasons, and placed the whole upon a self-sustaining basis by means of the license system. This bill became a law, and during the first year of its operation the sum of $16,050 was collected from the issuance of licenses alone.

One of the most conspicuous examples of a self-sustaining department was that of Missouri, prior to recent legislation abolishing the game protection fund. The general game act of 1905 established resident and nonresident licenses for hunting, and directed that the returns from them should be paid into the State treasury to the credit of the 'game protection fund,' which also included fines for violation of the act and certain small fees for issuing special permits. The act became effective on June 16, and the governor appointed a State game warden, who organized the department upon a working basis. At the end of the year, after all expenses of the department ($11,998.33) had been paid, there remained in the treasury to the credit of the game-protection fund $36,932.37.[a] The license fees collected from nonresidents hunting in Florida during the single open season of 1906–7 demonstrate the feasibility of supporting a State wardenship in that State by the funds accruing from this source alone. The amount was $6,380, and it is to be remembered that as the very unsatisfactory and inefficient system of county wardens without organization or central head is in effect there, this amount is undoubtedly much less than it should and would have been if the law requiring noncitizens to procure licenses had been strictly enforced.[b]

In most of the States and Territories, either the whole or part of fines arising from prosecutions for violations of the game laws are used for purposes of game protection, as shown in the table on pages

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[a] This act was repealed in 1907 and superseded by a law which destroyed the game protection fund, directing that all license fees be paid into county treasury for roads. When the law of 1905 was repealed, the balance of $47,000 then remaining in the game fund was divided, $20,000 being paid to the fish commission, and $27,000 paid into the general fund of the State.

[b] See 'Game Protection in Florida,' Circular No. 59 of the Biological Survey, U. S. Department of Agriculture, 1907.

36–37. In Illinois the license fees and part of the fines constitute a fund in the State treasury, designated as the State game protection fund, which is used for payment of expenses of the State game department, and the surplus for the introduction and propagation of quail, prairie chickens, pheasants, and other game. With this balance the State game commissioner has established a game farm of 160 acres in Sangamon County, not far from Springfield, where large numbers of pheasants, quail, and partridges have been propagated. These birds will be distributed throughout the State in suitable sections. The experiment has been a signal success.[a] All fines for violation of the game laws and license fees in California constitute a fund in the State treasury for the purpose of protecting, restoring, and introducing game. In this connection, as well as for other reasons, the following table of arrests and prosecutions for violation of the game laws in California during the two years ending August 31, 1904, is interesting. It will be seen that the game fund from this source alone amounted to $6,749.

Summary of Arrests made by Deputies of the California Fish Commission and Disposition of Cases for two years ending August 31, 1904.[b]

Number of arrests.	Violations charged.	Convicted.	Acquitted.	Dismissed.	Fines.	Imprisonment (days).
[a]4	Doves, "bag limit"	3	......	......	$100	....
[a]13	Killing or possession of doves, "closed season"	12	......	......	320	....
10	Ducks, "bag limit"	4	1	5	100	....
17	Killing or possession of ducks, "closed season"	12	2	3	250	25
3	Netted ducks (drowned)	1	2	......	25	....
15	Quail, "bag limit"	10	......	5	278	....
71	Killing or possession of quail, "closed season"	59	......	12	1,576	25
15	Offering quail for sale	10	3	2	240	25
4	Trapping quail	4	......	......	100	....
1	Quail in possession without permit	1	......	......	25	....
3	Chinese quail in possession	3	......	......	125	....
2	Deer, "bag limit"	2	......	......	50	....
1	Running deer with dogs	1	......	......	25	....
36	Killing deer, "closed season"	23	10	3	710	30
33	Possession of deer meat, "closed season"	30	1	2	845	43
[a]38	Killing female deer or fawn	29	1	7	820	40
5	Possession of female deer hides	4	1	......	100	....
11	Removing evidence of sex from deer hides	9	1	1	275	....
6	Sale of deer hides	6	......	......	160	....
[a]3	Sale of deer meat	2	......	......	50	....
12	Night shooting	6	......	6	150	....
2	Trespass	2	......	......	25	25
1	Snipe, "bag limit"	1	......	......	25	....
5	Plover, "closed season"	3	1	1	75	....
5	Grouse, "closed season"	4	......	1	100	....
3	Shooting meadow larks	3	......	......	45	....
1	Possession of pheasants	1	......	......	50	....
[a]5	Tree squirrel, "closed season"	4	......	......	105	....
325	Totals	249	23	48	6,749	213

[a] Cases pending.

In addition to license fees and fines, the money arising from the sale of confiscated game is paid into the game protection fund in several States. The income from this source in Wisconsin in 1903 amounted to $2,433.47 and in 1904 to $1,627.81. These amounts represent the value of only a small part of the game confiscated, as the sale of nearly all kinds of game is prohibited and such game must, under the law, be donated to some charitable institution of the State.

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[a] See Am. Field, vol. 66, p. 67, July 28, 1906.

[b] Eighteenth Biennial Rept. Board Fish Comm., Calif., p. 11, 1904.

Another source of revenue to the game protection fund is found in the provision of the Indiana law requiring the payment into the State treasury to the credit of the fish and game fund of $20 collected as costs from the defendant in every conviction where the commissioner or warden prosecutes. A similar provision is contained in the Connecticut law, but the $20 taxed against defendants there is paid directly to the warden prosecuting, and constitutes his entire compensation.

Several States make direct appropriations from the general treasury for the maintenance of their game departments as an addition to the funds arising from licenses, fines, etc. Thus Minnesota, in the game act, fixes the annual appropriation at $35,000; and Vermont, in the act of 1904 as amended in 1906, appropriates annually the sum of $5,500 for the preservation of fish and game. The following table shows the sums appropriated in the several States for game protection in the two years 1905–6, together with certain incidental details. It will be noticed that in 9 States—Idaho, Illinois, Michigan, Missouri, Montana, North Carolina, North Dakota, Washington,[a] and Wisconsin—the work was self-supporting. In several of these States no appropriations were made, or, as in Idaho, Missouri, and Washington, the money already in the game protection funds was appropriated or made available for the use of the department.

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[a] The general appropriation for salaries and expenses in Washington is almost exclusively for fishery work.

State Appropriations for Game Protection, 1905–6.[a]

State.	Game and fish.	Term.	From what fund.	Purposes.
Arizona				$698.25 for 1903–4 expenses of the commissioners.
California	$25,000	July 1, 1905–July 1, 1907	General	Restoration and preservation of game.
	1,400	do	do	Work and material furnished by State printer.
Colorado	22,200	1905 and 1906	do	Salaries and expenses.
Connecticut	16,000	Oct. 1, 1905–Oct. 1, 1907	do	Do.
	1,000		do	Establishment of a game preserve.
District Columbia	500	July 1, 1905–July 1, 1906	do	Enforcement.
Idaho	28,000	1905 and 1906	Fish and game fund.	Salaries and expenses.
Illinois [b]				
Indiana	19,000	Nov. 1, 1905–Nov. 1, 1907	General	Salaries and expenses.
Iowa	3,280	1905 and 1906	do	Salaries and protection of game.
Kansas	4,900	July 1, 1905–July 1, 1907	do	Salary State warden and expenses of enforcement.
Maine			do	Not specific—salaries paid as those of other officials.
Maryland	800	Apr. 1, 1904–Apr. 1, 1906	do	Traveling expenses of game warden.
Massachusetts	47,665	1905	do	Salaries, expenses, enforcement, damage by deer, hatcheries.
Michigan [b]				
Minnesota	35,000	Fixed annual sum	General	Enforcement.
Missouri	50,000	1905 and 1906	Fish and game fund.	For carrying into effect the game act.
Montana [b]				
Nebraska	24,230	Apr. 1, 1905–Apr. 1, 1907	General	Salaries, traveling expenses, and hatcheries.
New Hampshire			do	Not specific—salaries paid as those of other officials.
New Jersey	27,450	Nov. 1, 1905–Nov. 1, 1906	do	Salaries and expenses, protection and propagation of game and fish.
New Mexico	4,600	1905 and 1906	do	Salaries and expenses of Territorial game warden.
New York	75,400	Oct. 1, 1905–Oct. 1, 1906	do	Salary and expenses, exclusive of fish hatcheries, shellfish, and forestry expenses.
	15,000	do	do	Costs, fees, and expenses of prosecutions.
North Carolina [b]				
North Dakota [b]				
Ohio	11,000	Feb. 15, 1905–Feb. 15, 1906	General	Expenses of commission, exclusive of hatcheries and patrol boat.
Oregon	8,400	1905 and 1906	do	Salaries and expenses.
Pennsylvania	20,000	June 1, 1905–June 1, 1907	do	Enforcement of game laws only.
	6,000		do	Establishment and stocking of game preserves.
	300		do	Preparation and publication of the game laws.
Rhode Island	300	1905	do	Expenses of commissioners of birds.
Utah	4,600	1905 and 1906	do	Salaries and expenses of commissioner and deputy commissioner.
Vermont	5,000	Fixed annual sum	do	Salaries, hatcheries, etc.
Washington	21,600	Apr. 1, 1905–Apr. 1, 1907	do	Salaries and expenses of fish commissioner and deputies.
	5,000	do	Game protection fund.	Salary of chief game deputy and enforcement of game act.
West Virginia	2,600	Oct. 1, 1904–Oct. 1, 1906	General	Salary and expenses of game warden.
Wisconsin [b]				
Wyoming	5,600	Apr. 1, 1905–Apr. 1, 1907	General	Salaries and expenses of game department.

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[a] The appropriations for 1907–8 are necessarily omitted, as the laws were not available in time to obtain the figures for this report.

[b] Game protection system supported by direct income from game laws.

In a few States the game protection fund, which, as commonly understood, includes such moneys as are derived from enforcement of the game laws, is limited in whole or in part by constitutional provisions.

A provision in the constitution of Nebraska requires the proceeds from all licenses and fines arising under criminal laws to be paid into the school fund, thus effectually preventing the moneys from being used for game protection. Similarly, in Missouri and Nevada, constitutional provisions require proceeds from fines to be paid into the school fund. In Florida fines for violation of the game laws are paid into the fine and forfeiture fund of the county, and are not available for payment of wardens, although the game law attempts to make them so. A somewhat similar provision in the constitution of West Virginia requires the clear proceeds of fines to be paid into the general fund of the State. So far it has been customary in this State to pay such fines to the game wardens, in compensation for their services, and the legality of such payment is now before the supreme court of the State. In this connection it may be noted that Wisconsin has a constitutional provision directing that the 'clear proceeds' of all fines be paid into the school fund, but the supreme court of that State has held, in State *v.* De Lano (49 N. W., 808), that 'clear proceeds' means only the amount remaining after all lawful deductions in the case have been made, including a two-thirds for informers.

During the present year a disposition has been manifested in certain States to restrict the game protection fund or to legislate it out of existence. Wyoming has practically abolished its game protection fund and replaced it with an appropriation of $4,450 for the maintenance of the department during the next two years. Such a change by making the appropriation hard and fast, has the disadvantage of removing from the department the incentive to increase its income by sale of licenses or better enforcement of the law. In this case it has materially reduced the amount available for game protection, the amount collected from hunting licenses in 1905 having been about $12,000, whereas the sum available for 1907 will be but $2,225. Such action also renders the department more exposed to restrictions or adverse legislation.

GAME LAW ADMINISTRATION.

Thus far it has been the purpose to explain the nature of the machinery by which game laws are enforced, and it is now desirable to show how this machinery is put into motion.[a]

ARREST.

It is scarcely necessary to say that no punishment can be inflicted for violation of the game laws until some act constituting an offense is actually committed. In some States, however, such as Colorado and Minnesota, an *attempt* to violate the law subjects the offender to the same penalties as an actual violation.

It is an offense in several States to possess game *with intent* to export or sell it, and while no effort may be made to execute the intent it is nevertheless a violation of law, because the possession with intent to export or sell is made a substantive offense.

Upon violation of the game law, the first step is to secure the actual presence of the defendant in court to answer for his offense. This is accomplished by his arrest, but usually such arrest must have been preceded by a complaint under oath or an affidavit, setting forth a probable cause for believing the defendant guilty. A warrant is then issued to some competent and authorized executive officer—as a game warden, constable, or police officer—directing him to arrest the accused and bring him before the judge, justice, or court issuing the warrant, or, in a very few cases, before some other court having jurisdiction. In every State and Territory where the warden system is in operation the power of arrest is conferred upon the wardens, and in most instances upon members of the boards of fish and game commissioners. It is customary in some States to include in the game laws a provision authorizing game wardens and other officers to arrest without warrant, but unless this authority is contained in the game act or allowed by a general statute it can not ordinarily be lawfully exercised, since to authorize an officer to arrest without warrant for any offense less than a felony—and with very rare exceptions violations of the game laws are only misdemeanors—the offense must tend to a breach of the peace, and the officer must find the person in the act of violation. Were not the power to arrest without warrant conferred upon the wardens many violators would escape. Offenders against game laws usually operate in remote and secluded places, often so far removed from any judicial officer that proper enforcement of such laws would be impossible were warrants for arrest required.

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[a] New Jersey in 1897 enacted a special law to provide a uniform procedure for the enforcement of laws relating to fish, game, and birds (acts of 1897, ch. 44), but apparently it is the only State which has such a statute.

The complaint or affidavit upon which a warrant of arrest is issued must contain a sufficient statement of facts to justify the reasonable suspicion that the person charged has violated the law. It should be in writing, and be signed by the person making it. Attention is especially directed to the rule, which has very few exceptions, that any person who is capable of understanding the solemnity and nature of an oath may, if indeed he is not in duty bound as a good citizen so to do, make the complaint on affidavit if he knows of a violation or has probable cause to suspect it. Hence, it is in the power of every citizen of a community to aid in the enforcement of the game laws. Were it otherwise many crimes would go unpunished.

Ordinarily the complaint or affidavit upon which the warrant of arrest is issued serves also as a complaint upon which the defendant is tried, and it is important to frame it so accurately in the first case that it will be sufficient in the latter. The following frame or skeleton of a complaint for hunting without a license is given in the pamphlet of game laws published by the State warden of Wisconsin for the guidance of deputy wardens and persons undertaking the enforcement of the game laws:

STATE OF WISCONSIN, } *ss.*
COUNTY OF ———, }

——— ———, being duly sworn, says that on the —— day of ———, in the year 190—, at said county, ——— ——— (name of the accused) did pursue (hunt or kill) ——— (state what) without at such time being in possession of a license authorizing him, then and there, to pursue (hunt or kill) animals, fowls or birds, contrary to the provisions of section 4562a W. S. of 1898, as amended by section 30a of chapter 312 of the laws of said State for 1899, and against the peace and dignity of the State of Wisconsin.

——— ———.

Subscribed and sworn to before me this —— day of ———, A. D. 190—.

——— ———,
Justice of the Peace.

The above form can be used in almost any State and case with the necessary changes to comply with the statute and the particular offense charged. Thus, if a nonresident be charged with hunting without license, the allegation should be made in the complaint that he is a nonresident of the State.

Unless prohibited by statute an arrest may be made on Sunday as on any other day. The New Jersey statute prescribing the procedure for enforcing the game laws contains the following provision:

> SEC. 15. Proceedings under this act may be instituted on any day of the week, and the institution of such proceedings on Sunday shall be no bar to the successful prosecution of the same, and any process served on Sunday shall be as valid and effectual as if served on any other day of the week.

In Ohio it is provided that arrest, either with or without warrant, may be made on Sunday, in which case the offender shall be taken before the court and required to give bond for his appearance on a week day to answer the complaint. Similar provisions are contained in the laws of several other States.

If a warrant be necessary for the arrest of the defendant, one is issued by the justice or judicial officer before whom the charge is made, and the defendant is arrested. He should be taken at once before the judicial officer issuing the warrant, when usually trial of the case is postponed until the defendant can prepare his defense. A few States prescribe the procedure to be followed in cases where corporations are defendants. Thus, the Colorado statute reads as follows:

> SEC. 21. In case of a violation of this act by a corporation, the warrant of arrest may be read to the president, secretary, or manager in this state, or any general or local agent thereof in the county where the action is pending, and upon the return of such warrant so served, the corporation shall be deemed in court and subject to the jurisdiction thereof, and any fine imposed may be collected by execution against the property of such corporation. (Laws of 1899, ch. 98, Div. A.)

ARREST WITHOUT WARRANT.

In many of the States wardens and police officers are authorized under the game laws to arrest without process or warrant any offenders found in the act of violating the law. In Utah the State commissioner and the county wardens (at any point in the State) and sheriffs and constables (in their respective counties) are required to arrest, with or without warrant, any person whom they believe guilty of a violation of the game law; but if no warrant is obtained the prisoner must be held until one can be procured. In the accompanying table the States which vest their wardens with authority to arrest without warrant are enumerated, and such details are given as are pertinent to that power.

Powers of Officers to Act Without Warrant in Enforcement of the Game Laws.

State.	Officers.	Arrest.	Search.	Authorized to seize.
Alaska	Marshal, deputy marshals, collector and deputy collector of customs, or anyone authorized in writing by a marshal.	Persons found violating the game laws or regulations of the Secretary of Agriculture thereunder.		Game, hides, traps, nets, guns, boats, and paraphernalia in possession of person and in unlawful use.
Arizona	Commissioners and their deputies	Persons found in the act of violating the game laws.		
Arkansas			Common carrriers may open packages intended for export to ascertain if they contain game.	
Colorado	Commissioner, wardens, sheriffs, and constables.	Persons believed guilty of violating the game laws.	Any place. except dwelling house; may open and examine boxes, barrels, and packages, where game taken or held illegally is believed to be concealed.	Game taken or held illegally; nets, traps, or devices used or designed for illegally taking game.
Connecticut	Wardens, deputies, special protectors.	Persons violating the game laws	Any place or receptacle, upon reasonable suspicion of use for keeping or, conveying game illegally taken or held.	
	Owner or occupant of land, and those he may command to assist him.	Trespassers on his land		
Delaware	Members of Game Protective Association.	Persons found violating the game laws.		
District of Columbia	Police officer, game warden, or health officer.		Any place where game, meats, or birds are believed to be stored or kept.	
Georgia	Game warden and deputies	Persons found in the act of violating the game laws.		
Idaho	State game warden, deputy wardens and ex officio game wardens.	Persons found violating the game laws.	Tents, wagons, camps, packs, where they have reason to believe game illegally taken may be found.	
Illinois	Commissioner, wardens, and deputies.	Persons detected by them actually violating the game laws.		Game found in possession of any person or corporation contrary to law.
Indiana	Commissioner and his deputies	Persons violating or attempting to violate the game laws in their presence.		
Iowa	State fish and game warden and deputies, sheriffs, constables, and police officers.			Game taken, killed, possessed, and shipped contrary to law, and nets, traps, contrivances, materials, and substances used or intended for use in illegally taking game.

Kansas	State fish and game warden and deputies.	Persons caught by them in act of violating the game laws.		
	State warden		Places where meat, fish, and game are kept for sale, shipment, or storage.	
Kentucky	Fish and game wardens	Persons found by them in act of violating the game laws.		Game, guns, nets, traps, and devices found in possession of persons violating the game law.
Louisiana	Game wardens.	Persons found violating the game laws.	Cold storage or refrigerating plant, car, vessel, vehicle, or package where birds are believed to be kept contrary to law.	
	Game wardens and all officers	Nonresident and unnaturalized resident found hunting without a license.		
Maine	Commissioners and wardens, sheriffs, deputy sheriffs, constables and police officers.	Persons whom they may believe to be or who are guilty of violating the game laws.		Firearms of unlicensed aliens found hunting.
	Commissioners and wardens		Any place, except dwelling house and sealed railroad car; may examine boxes, barrels, and packages where they have reason to believe game illegally taken or held is to be found.	Game found in any place, except dwelling house and sealed railroad car, which was taken or is held contrary to law.
Maryland	State game warden and deputies	Persons suspected or known to be guilty of a violation of law,		
Massachusetts	Commissioners, their deputies, district police, and officers qualified to serve criminal process.	Persons found violating the game laws. Nonresidents refusing to show their licenses.		Game taken or held in violation of law.
Michigan	State game and fish warden, deputy game and fish wardens, county game and fish wardens.	Persons caught by them in the act of violating the game laws.		Game caught, taken, killed, possessed, or shipped contrary to law.
Minnesota	Commissioners and wardens		Hotels, restaurants, cold-storage houses and ice houses used for storage of meats, game, or fish for private parties.	
	Commissioners, wardens, sheriffs and their deputies, constables, and police officers.			Game caught, taken, killed, possessed, or shipped contrary to law, and devices and contrivances used for taking the same.
	Executive agent and all deputies	Persons found in act of violating the game laws.		
Mississippi	Sheriffs, constables, and marshals	Persons they know or have reason to believe are violating regulations of the board of supervisors for protection of game.		Game and appliances found in possession of persons violating the regulations of the supervisors.
	Game wardens and officers of the law.	Nonresident found hunting without license.		

Powers of Officers to Act Without Warrant in Enforcement of the Game Laws—Continued.

State.	Officers.	Arrest.	Search.	Authorized to seize.
Montana	State game and fish warden, deputies and special deputies.	Nonresidents hunting without license.	Person or place, except dwelling house, when they believe evidence of violation of law will be found.	Game caught, taken, killed, possessed, or shipped contrary to law.
	Peace officers	Nonresidents hunting without a license.		
Nebraska	Commissioner and deputy, sheriffs, and constables.	Persons whom they have reason to believe guilty of violating the game laws.	Any place, except dwelling house; may open and examine boxes, barrels, and packages, where they have reason to believe game or birds taken illegally are to be found.	Game taken or held contrary to law found in places searched.
New Hampshire	Commissioners, their deputies and detectives.	Persons violating the game laws		
New Jersey	Commissioners, wardens, fish and game protectors, constables, police officers, and members of an incorporated game protective society.	Persons violating the game laws in their presence.		
	Commissioners, wardens, and chief protector.	For "flagrant violation of the game laws."	Boat, conveyance, vehicle, fish box or basket, game bag or coat, or other receptacle when they have reason to believe the game laws have been violated.	Game caught, taken, killed, possessed, or shipped contrary to law.
	Protector and wardens	Nonresidents found or believed to be hunting without license.		Guns and shooting paraphernalia of nonresidents found hunting without a license.
New York	Game protectors, special protectors.	Persons violating the game laws in their presence.	Boat, car, box, locker, basket, creel, crate, game bag or package, and building, except dwelling house.	
	Peace officers	Persons violating the game laws in their presence.		
North Dakota	District and deputy game wardens and peace officers.	Persons caught by them in act of violating the game laws.		Game caught, taken, killed, possessed, shipped or held for shipment contrary to law.
Ohio	Wardens, sheriffs, deputy sheriffs, constables, and police officers.	Persons detected by them in act of violating the game laws.		Game possessed in violation of law, and guns, nets, boats, traps, and other devices with which same was taken or killed.
Oklahoma	Territorial game warden and his deputies.	Persons caught by them in act of violating the game laws.		Game taken, killed, possessed, or shipped contrary to law.
	Wardens, sheriffs, marshals, and constables.	Person or agent of a transportation company having game in possession for transportation.	Premises where game is held for transportation, upon information or belief of a violation of law.	Game held for transportation or transported by common carrier or private person.

Oregon	Game and forestry warden, his deputies and ex-officio wardens.	Persons violating the game laws.	Any receptacle, game bag or coat, boat, conveyance, or vehicle, when they have good reason to believe the game laws have been violated.	Game caught, taken, killed possessed, or shipped contrary to law.
Pennsylvania	Game protectors and all deputies, and constables.	Persons fouud by them in act of violating the game laws.	Boat, conveyance, vehicle, or receptacle, when they have reason to believe the game laws have been violated.	
	State constabulary	Persons found by them in the act of violating the game laws.		
Rhode Island	Commissioners of birds and their deputies.	Persons found by them hunting game birds, rabbits, and gray squirrels contrary to law.		Game birds, rabbits, or gray squirrels found in possession in close season.
South Dakota	Game wardens, deputies, all officers of the law.	Persons found in the act of violating law protecting small game.		
	Big-game wardens, deputies, sheriffs, and constables.	Persons found in the act of violating the big-game law.	May make "reasonable examination" of tents and other places where hunters might conceal game when reasonable suspicion exists of a violation of the game laws.	
	Big-game wardens			Big game and guns in possession of persons in act of violating the law.
Tennessee	State warden, county wardens, and deputies.	"Offenders"		
Texas	Game, fish, and oyster commissioner, and his deputies.	Persons found in act of violating the game laws.		Game or birds illegally taken, caught, killed, possessed, or shipped.
Utah	Commissioner, chief deputy, State wardens, county wardens, sheriffs, and constables.	Persons they believe guilty of violating the game laws.	Any place, except dwelling house; may open and examine boxes, barrels, and packages, when they have reason to believe game illegally taken or held is to be found therein.	Game illegally taken or possessed.
Vermont	Fish and game wardens	Persons found violating the game laws.		
Virginia	Game wardens	Persons violating the law in their presence.		
Washington	Game wardens, sheriffs, deputy sheriffs, city marshals, constables, police officers, forest rangers.	Persons found by them violating the game or bird laws.		
West Virginia	State game warden and deputies	Persons found by them in act of violating the game laws.		Game and birds caught, taken, killed, possessed, or shipped contrary to law.
Wisconsin	State warden, district wardens, and special deputy wardens.	Persons detected by them in act of violating the game laws.		Articles declared by law to be public nuisances and implements used in violation of law.
Wyoming	State game warden, assistant and special assistant game wardens, sheriffs, and constables.	Persons found in act of violating the game laws.	Packs, camps, camp outfits, and wagons for game illegally taken or held.	

POWER TO REQUIRE AID.

The game warden unaided may be physically powerless to execute the process in his hands or to check violations of the law committed in his presence. To provide for such contingencies Colorado, Minnesota, Maine, Ohio, Pennsylvania, Texas, West Virginia, and Wyoming empower their wardens, or certain of them, to summon to their aid any number of persons required. In Colorado the commissioner or one of the chief wardens may, when such course is necessary, summon to his aid, or require the sheriff of the county to do so, a sufficient number of persons to quell any unusual and ungovernable violation of law. It is a violation of the act for any person, when summoned, to fail to respond without good cause. Nevertheless, the commissioner of that State, in his report for 1901 and 1902, questions the value of this power and gives the result of his experience in attempting to put it into operation in the fall of 1902, when he undertook to quell an Indian raid in Rio Blanco County. He says:

> In October of last year [1901] I received information that the Indians were hunting in the vicinity of White River in Rio Blanco County. I went there and succeeded in arresting seven Indians who had in their possession a wagon load of 'jerked' venison, one hundred and forty-odd deer hides, and some fawn and doe heads and hides. The Indians, with their booty, were conveyed forthwith to Meeker, in Rio Blanco County, and brought before a justice of the peace. A jury was called and evidence presented which would convict in any other court in the land, but, for reasons which at that time I did not understand, they were found not guilty. . . . It seems that the citizens, almost to a man, are opposed to these annual raids, but, as it is taken for granted that they will continue, and that, as heretofore, no successful measures will be taken to prevent them entirely, they are not inclined to incur the enmity of the Indians. Many of the citizens have cattle and other property in the localities where the Indians hunt and have frequent occasion to go there in person. . . .
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> This year [1902] upon learning that the Indians were again making their appearance I decided to visit their camps in person, with the view of persuading them to go back peacefully. I encountered a number of them at Gillen Draw, in Rio Blanco County, at about 10 o'clock in the forenoon of October 6. After they had learned my business with them they agreed to go back to the reservation. It seems, however, that instead of returning, they found another band in the vicinity and immediately followed my trail. Upon sight of me they began firing. I was shot in the left side, the bullet shattering a portion of the seventh rib. While the wound was painful, it was not serious, and I was still able to cling on my horse. Their fire was returned by me, but with what result I do not know. Later my horse was shot from under me, and I was compelled to seek shelter in the brush. The loss of blood from the wound began to tell upon my strength by this time, and I was forced to lie down. At daylight I made my way back to Rangely, and, after attending to my wound, asked for volunteers to go with me to the scene of the encounter for the purpose of getting my saddle and bridle. Some of the citizens of Rangely informed me that they 'had lost no Indians,' and I found only one man . . . who was willing to go with me. After securing the saddle and bridle, we learned from a number of cowboys whom we met that the Indians were on their way back to the reservation.
>
> The history of this department during the past few years satisfies me that the commissioner is not able to cope with these Indian depredations with the force at his command. While the law intends that in such cases the commissioner may

demand the aid of the sheriff of the county, and may call to his assistance a sufficient number of persons to enforce the law, my experience convinces me that this mode of procedure is not satisfactory, and I would earnestly urge that the legislature make such provision in the way of an available appropriation as to enable the commissioner, with the consent of the governor, to place a force of at least twenty wardens in that locality when necessary[a] (p. 10).

ARREST OF TRESPASSERS BY LANDOWNER.

By an act passed in Connecticut in 1903 (chap. 199), authority is given the owner, occupant, or person in charge of land, or such persons as he may command to assist him, to arrest any person entering upon his premises for the purpose of hunting, trapping, fishing, or destroying nests and eggs of birds; and to take such trespasser forthwith before some proper authority, who shall, upon complaint of the proper prosecuting officer, proceed to try such person. The possession by a trespasser of gun, dog, ferret, or fish rod is made prima facie evidence of his intention to hunt or fish on the land. The person arresting such trespasser is entitled to the fees usually allowed constables for similar service.

EXTRADITION.

Under the constitution of the United States a person charged in any State with treason, felony, or other crime who shall flee from justice shall, on demand of the executive authority of the State from which he fled, be delivered up to be removed to the State having jurisdiction of the crime. (Art. 4, sec. 2.)

To carry this provision into effect, Congress has passed an act providing substantially that whenever the executive of any State shall demand any person, as a fugitive from justice, of the executive authority of another State to which such person shall have fled, and shall, moreover, produce the copy of an indictment found, or an affidavit made before a magistrate of the demanding State, charging the person so demanded with having committed treason, felony, or other crime, certified as authentic by the governor or chief magistrate of the demanding State, it shall be the duty of the executive authority of the State on which the demand is made to cause him or her to be arrested and secured, and [to give] notice of the arrest to the executive authority making such demand, or to the agent of such authority appointed to receive the fugitive, and to cause the fugitive to be delivered to such agent when he shall appear. But if no such agent shall appear within six months from the time of the arrest, the prisoner may be discharged. (Clark's Criminal Procedure, p. 62.) See also Rev. Stats., U. S., sec. 5278.

Cases of extradition under the game laws are comparatively rare, possibly because the violations of such laws are usually merely misdemeanors, and because, until recently, of the laxity in enforcement. In late years, however, several cases have occurred in which extradition proceedings were necessary to bring to justice residents of New York who hunted in Pennsylvania and residents of Pennsylvania who hunted in West Virginia. In 1904 a sportsman from Homestead, Pa., who had been indicted for hunting squirrels out of season in West Virginia, was arrested and taken under extradition papers to Morgantown, W. Va., where he was fined $25 and costs for hunting without a nonresident license. He was required also to deposit $110 as a guaranty of his appearance at the next term of court to answer the indictment.[a]

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[a] See also an account by D. C. Beaman of a previous raid in Routt County in October, 1897, entitled 'The Colorado Game Wardens and the Ute Indians,' in Forest and Stream, L, p. 27, January 8, 1898.

In 1904 Robert and George L. Parkins, of Lucyville, Washington County, Pa., hunted in Monongalia County, W. Va., without securing nonresident licenses. On returning home they took with them several pheasants (ruffed grouse) and one quail, which they had killed out of season. In September, 1905, they visited the county again, but left upon learning that inquiries had been made regarding their actions. A requisition was obtained from the governor of West Virginia and duly honored by the governor of Pennsylvania. The men were then promptly arrested at Lucyville, taken to West Virginia, and upon conviction paid fines of $312 each.[b]

In September, 1905, the grand jury at Morgantown, W. Va., found three indictments against John H. Malloy and Dr. Walter Downey, of McKeesport, Pa., for killing five yellowhammers and crippling one, and for having the birds in possession. A requisition was obtained and Malloy was arrested and brought to West Virginia. Doctor Downey was ill and could not go, but Malloy plead guilty for both and paid $15 fine and $15 costs in each of two cases against each defendant, making a total of $120.[c] Malloy was also charged with purchasing and having in possession a fawn with spotted coat, and in this case paid a minimum fine of $5 and in addition costs amounting to $6.50.

Recently the Indiana authorities made requisition on the governor of Kentucky for ten citizens of that State, who had been hunting in Indiana without license and who were finally brought to trial in Indiana and convicted.

Montana makes specific provision for extradition in case of violation of game laws. A section in the game law of 1897 (H. B. 123, sec. 23, p. 254) provides that whenever in a trial of any felony under the game laws of that State it appears that the crime was committed in another State, or that the game was killed in violation of the laws of another State, it shall be the duty of the court to hold the defendant for such time as shall be required to allow the authorities of such State to take the necessary steps to secure the extradition of the defendant, and it is further made the duty of the prosecuting attorney to notify immediately the proper officers of the State and county where the offense was committed.

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[a] Bulletin 19, Biological Survey, U. S. Department of Agriculture, p. 44, 1904.

[b] See Am. Field, LXIV, p. 311, Oct. 7, 1905; Sportman's Review, XXVIII, p. 428, Oct. 14, 1905.

[c] See Am. Field, LXIV, p. 335, Oct. 14, 1905.

In this connection mention may be made of a Wisconsin provision authorizing action which is very similar to the operations in case of extradition. By this provision wardens of other States are declared agents of their States in Wisconsin and empowered to follow into Wisconsin, seize, and carry back any game unlawfully shipped from or taken in their States, and transportation companies are authorized to deliver to such officers any game demanded. Wardens are further empowered to dispose of game so seized in Wisconsin in accordance with the laws of their respective States, but such disposition is to be made under the supervision of an officer of Wisconsin, and the expenses are made a lien on the proceeds. A further provision designates wardens of other States as agents of Wisconsin for the purpose of seizing, holding, and disposing of game protected by the laws of Wisconsin.

SEARCH.

SEARCH WITH WARRANT.

The right to search certain places under warrant, and in some States persons, has been quite generally conferred upon game wardens. Without the specific grant of this power by law it is questionable whether it can be exercised. To authorize the issuance of a search warrant there must be a complaint, under oath, charging a violation of the game law, and such complaint should designate the place where the game is concealed or stored. In several States the magistrate is authorized to issue a search warrant upon affidavit of probable cause for suspecting the concealment of game in certain places contrary to law. The search provision of the Minnesota statute may be quoted as an example of the drastic means adopted by most of the Western States to enforce their game laws:

> Any court having jurisdiction may upon complaint showing probable cause for believing that any bird, animal, fish or any part thereof caught, taken, killed or had in possession or under control by any person, or shipped or transported contrary to the provisions of this chapter, is concealed or illegally kept in any building, car or receptacle, shall issue a search warrant and cause a search to be made in any such place for any such birds, animals, fish or any part thereof, and may cause any building, inclosure or car to be entered, and any apartment, chest, box, locker, crate, basket, package, or any other receptacle whatever to be broken, opened and the contents thereof examined. (Laws of 1905, ch. 344, sec. 12.)

The older States are more conservative and reluctantly grant the right to search, even with a warrant. Thus Massachusetts did not confer the right to search, under the game laws, till 1904, and then only under warrant. In Mississippi and in most other States a private residence can not be searched, and in Maine it can only be searched in the daytime.

The power to search persons stands on a slightly different footing. In Michigan, Montana, Oregon, and West Virginia, persons suspected of violating the game laws can be searched under certain conditions.

The Illinois law does not vest the wardens with power to search, but provides that when they believe any person or corporation has any game in his or its possession, contrary to law, it shall be their duty to go before any justice of the peace in the county and make affidavit to that fact. Whereupon the justice shall issue a search warrant directed to any constable of the county commanding him to search at once for said game and, upon finding it, to seize and hold it until further order of the justice. A form of warrant is contained in the law, as follows:

STATE OF ILLINOIS, } ss.
——— COUNTY, }

To any constable of said county, greeting:

You are hereby commanded to search (here describe place), seize, and take possession of and hold any game, deer, wild fowl, or bird found there. And you (here name owner or corporation in whose possession game is found) are hereby notified to appear before me at my office in (here locate office) on (here state time of trial) and show cause why the game, deer, wild fowl, or birds should not be sold and the proceeds thereof distributed as required by law.

(Signature of justice.)
Justice of the Peace.

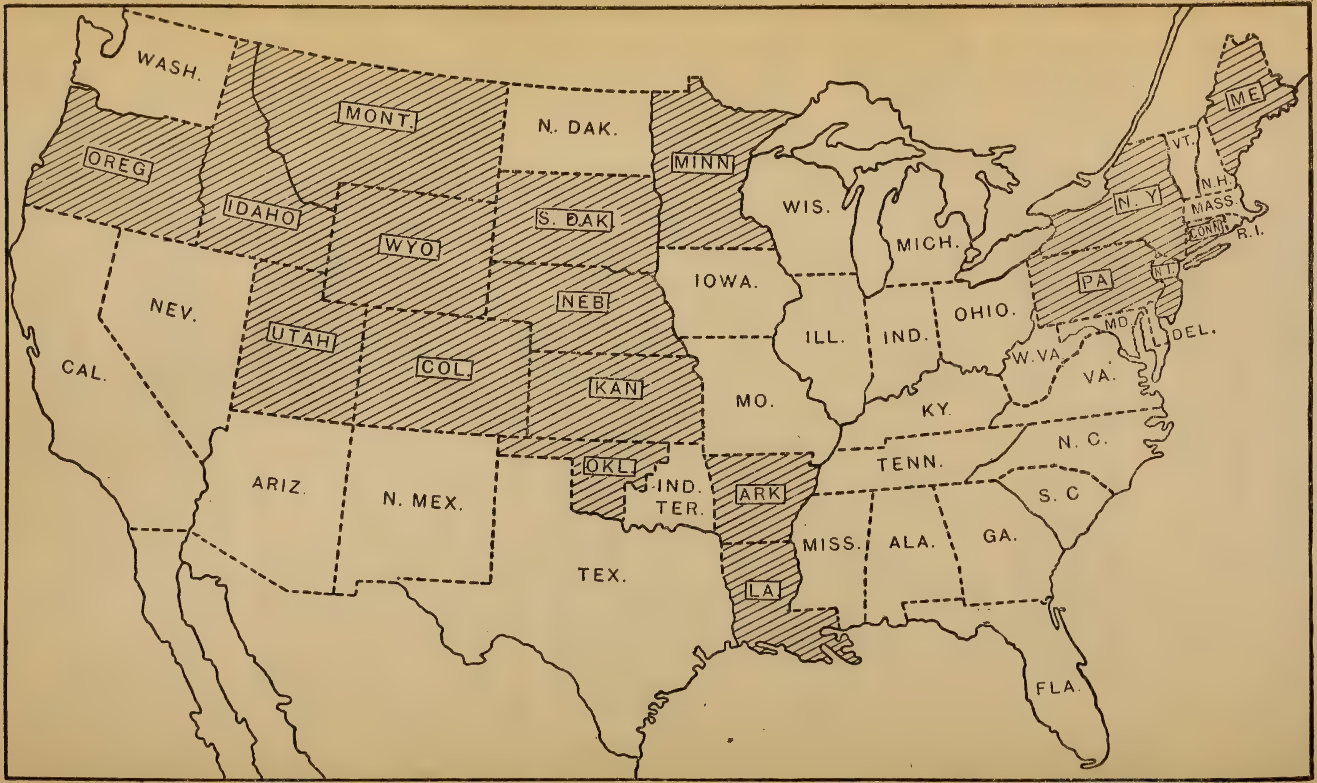
(Date of warrant.)

In Maryland also the warrant is directed to a constable on affidavit of a warden.

The right to search for game illegally held is perhaps one of the most important functions of a warden and is necessary for efficient protection, for in no other way can illicit traffic in game be eradicated. This authority has led to the discovery of large numbers of birds and quantities of game in some of the cities of the United States and the suppression of a traffic only suspected before. It has been only by means of this process that illegal interstate commerce in game has been stopped. So hard have the market hunters in the Mississippi Valley been pushed that in order to get their illegal shipments to the city markets they have packed the game in butter tubs or egg cases, labeling the shipment 'butter' or 'eggs.' Other devices also for evading the game laws have been adopted. But the climax was reached when certain shippers packed their game in a coffin box and shipped it as a corpse, accompanied by a false health certificate. Somewhat more troublesome, if not so gruesome, was the resort to bales of hay, the game being placed in the center of a car with the bales of hay piled about it.

SEARCH WITHOUT WARRANT.

Seventeen States and the District of Columbia specifically provide that wardens or other officers may search certain designated places without a warrant. (See Pl. V.) While the statutes vary widely in language, the substance is the same, and the officers are clothed with power to accomplish the same results. It is interesting to note that most of the States granting this power are Western or Central; of the Southern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STATES (RULED) WHICH AUTHORIZE WARDENS TO SEARCH WITHOUT WARRANT.

States only Louisiana is included and of the Eastern only Maine, Connecticut, New Jersey, New York, and Pennsylvania. Arkansas has a provision permitting common carriers to open and examine any package delivered to them for transportation out of the State that they suspect contains game, and the Texas game law of 1907 contains a similar provision, as follows:

> That such express company, or other common carrier, or its agents, servants or employes shall have the privilege of examining any suspected package for the purpose of determining whether such package contains any of the articles mentioned herein [all game]. (House Bill No. 345, sec. 10.)

Ohio does not vest her officers with power to search without warrant, but provides that in case of refusal of the owner or person in charge of any package, box, coat, clothing, or other receptacle to permit a warden or officer to inspect them, such officer may procure a search warrant to do so from any competent court. Penalizing the refusal of any person to permit an inspection of his place or receptacles, the interposition of or hindrance or interference with such search, accomplishes much the same result as direct authorization of search with or without warrant. Such provisions are as follows:

Kansas.—Persons engaged in trade of meat, fish, and game are required, under penalty of $10–$50, to permit an inspection of their places of business by a warden.

Minnesota.—Any person in possession or control or in charge of any hotel, restaurant, storage plant, or house commonly used in storing meat, game, or fish for private parties refusing or failing to permit any member of the game commission or its wardens to enter such place or receptacle therein for the purpose of making an inspection thereof is punishable by a fine of $50–$100 or imprisonment for 30–90 days.

West Virginia.—Any person who hinders, obstructs, or interferes with a game warden in the discharge of any of his duties (among which is the duty to search for evidence of the violation of law) is punishable by a fine of $10–$50, and in default of payment shall be imprisoned until it is paid, but not exceeding 30 days.

Michigan, Oregon, and West Virginia, render evasions of their laws still more difficult or more certain of detection by making hindrance or obstruction to officers in their search for evidence or fruits of violations, prima facie evidence of violation of law. The Michigan provision is as follows:

> And any hindrance or interference, or attempt at hindrance or interference, with such search and examination shall be prima facie evidence of a violation of the law by the party or parties who hinder or interfere with such search and examination.

Details of the right to search without warrant are given in the table on pages 46–49.

SEIZURE.

SEIZURE OF GAME.

Complementary to the right of search and only another step in that process is the right to seize game or the implements with which it has been unlawfully taken. Before the warden undertakes to exercise power of seizure he should be certain that he has the statutory right to do so. Such right, however, has been bestowed upon officers by the game laws of nearly all the States. Usually game alone may be seized, but a few of the States provide for seizure of guns, ammunition, and any contrivance with which game has been illegally killed or taken. In the table on pages 46–49 will be found a list of the States permitting seizure without warrant. (See also Pl. VI.) This power is exercised also in a few States not mentioned, and is doubtless justified under the language and context of the game acts of those States.

The objects of seizure may be several, but the most usual are preventing consummation of an illegal transit, sale, or other disposition and securing evidence of a violation of the game law. Under this authority some very large seizures have been made; thus in the prosecution of Robert Poole and William Kerr in Minnesota (State *v.* Poole, 100 N. W., 647) 2,498 ducks were seized.

DISPOSITION OF SEIZED GAME.

Twenty-eight States and one Territory prescribe what shall be done with game which has been seized and what disposition shall be made of the proceeds when it is sold. (See Pl. VII.) The details of these provisions are shown in the following statement:

Colorado.—Sold. Proceeds paid into State game fund if seizure and sale is made by a warden; if by a sheriff or constable, one-half to State game fund and one-half to county.

Illinois.—Sold. After payment of costs, one-half proceeds to warden making complaint and one-half to State game fund.

Iowa.—Sold. Proceeds, less expenses, paid to county school fund.

Louisiana.—Confiscated. Apparently disposed of as court may direct.

Maine.—Sold. Proceeds, less expenses of sale, paid into State game fund.

Maryland.—Sold. After payment of costs, one-half to warden and one-half to county school fund.

Michigan.—Disposed of as court may direct.

Minnesota.—Sold. Proceeds paid to State game protection fund.

Missouri.—Donated to some charitable institution.

Mississippi.—Confiscated. Apparently disposed of as court may direct.

Montana.—Sold. Proceeds paid to State fish and game fund.

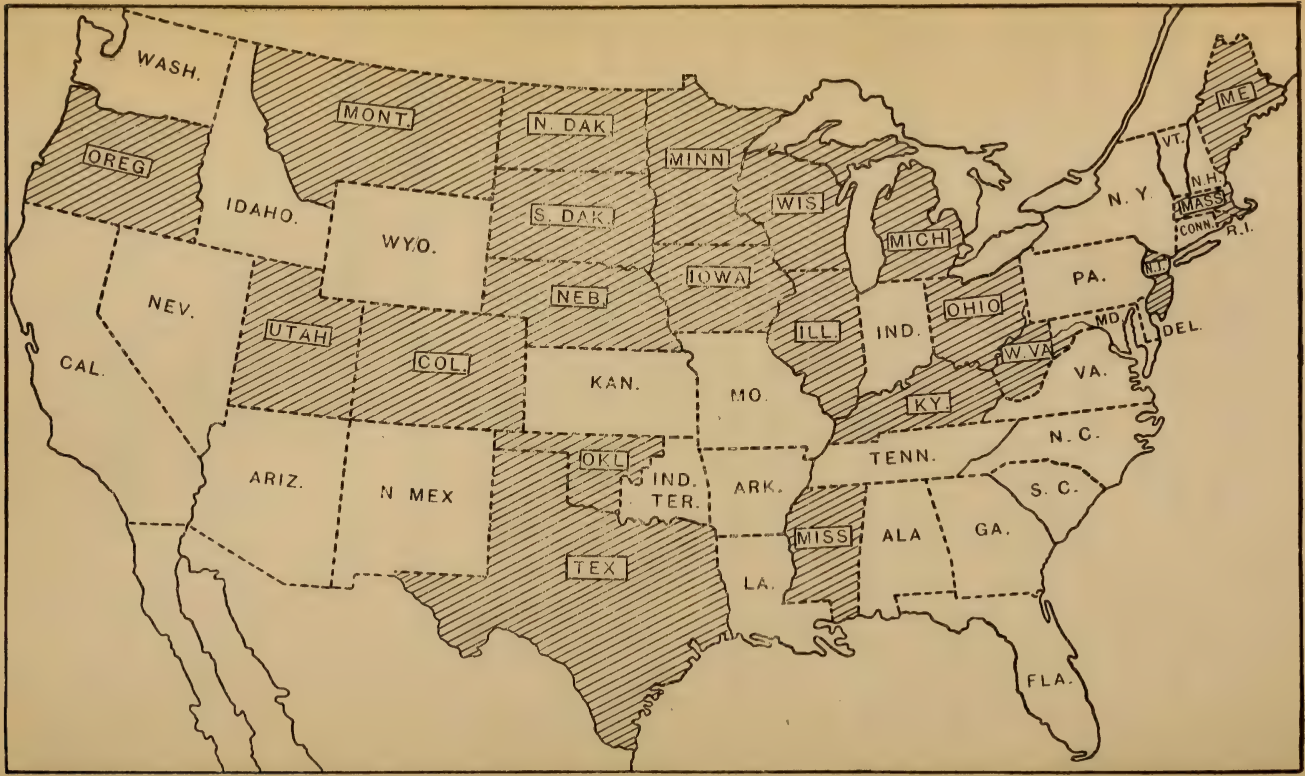
Nebraska.—Donated to some charitable institution.

New Hampshire.—Sold. Proceeds paid to game detective fund.

New Jersey.—Disposed of as court may direct.

North Carolina.—Sold. Proceeds paid to bird and game fund.

North Dakota.—Sold. Two-thirds of the proceeds paid to warden making seizure and sale and one-third to district game warden.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STATES (RULED) WHICH AUTHORIZE WARDENS TO SEIZE WITHOUT WARRANT.

Ohio.—'Escheats to State.' Apparently disposed of as court may direct.

Oklahoma.—Disposed of as court may direct.

Oregon.—Disposed of as court may direct.

Pennsylvania.—Game sent to nearest hospital; nongame birds, after use as evidence, destroyed.

South Carolina.—Sold. Proceeds paid to State game fund.

South Dakota.—Sold. Proceeds paid to county game fund.

Tennessee.—Confiscated.

Texas.—Disposed of as court may direct.

Utah.—Sold. Proceeds paid to county treasury.

Vermont.—Used as evidence. Apparently disposed of as court may direct.

Virginia.—Disposed of as court may direct.

West Virginia.—Disposed of as court may direct; if sold, proceeds paid to State treasury.

Wisconsin.—Sold. Proceeds paid to State treasury and credited to hunting license fund.

Wyoming.—Sold. Proceeds paid to State game fund.

From the foregoing it will be seen that in Colorado, Illinois, Maine, Maryland, Minnesota, Montana, North Carolina, North Dakota, South Carolina, South Dakota, and Wyoming the proceeds arising from the sale of confiscated game are used either wholly or in part for game protection. In Michigan, New Jersey, Oklahoma, Oregon, Texas, Virginia, and West Virginia, and apparently in Louisiana, Mississippi, Ohio, and Vermont, confiscated game is disposed of as the court may direct, while in Missouri, Nebraska, and Pennsylvania, and in Wisconsin in case sale is prohibited, it is donated to some charitable institution. Prior to 1905 a similar provision was contained in the law of Minnesota, but it was found that these institutions did not properly appreciate the privilege, and upon the recommendation of the board of game and fish commissioners the legislature of that year directed that all confiscated game should be sold and the proceeds paid into the game protection fund.

The laws of Illinois, Maryland, Montana, North Carolina, South Carolina, and North Dakota direct the officer selling confiscated game to issue to the purchaser a certificate of lawful purchase and provide that thereafter he may deal with such game as if it had been acquired in the State according to law.

The right of the State to direct the sale of confiscated birds and convey a legal title to the purchaser, who under ordinary circumstances would be debarred by law from lawful possession of such birds, was questioned in the case of Meul *v.* People (Ill.), reported in 64 N. E., 1106, and there sustained.

As seizure of game or arrest of a violator of the game law is likely to occur in remote sections of the State, where it is difficult or impossible to secure ordinary means of conveyance, the laws of Colorado and Nebraska permit the officer making the seizure or arrest to use for transportation any available vehicle. Colorado provides that—

> Where game or fish, while being transported, is seized under this act the officer making such seizure shall have authority, upon payment of reasonable compensation therefor, to also take possession of and use any animals and vehicles used in such transportation for the purpose of conveying the game or fish seized to a convenient railroad station or place of safe keeping or sale, and also for conveying any person arrested for the unlawful possession of such game or fish to a place of hearing or trial, and no liability shall attach to such officer by reason thereof; but this section shall not apply to any animal or vehicle while being used as a public conveyance for passengers or mails, or to any railroad car. (Laws of 1899, chap. 98, sec. 12.)

The Nebraska provision is practically identical.

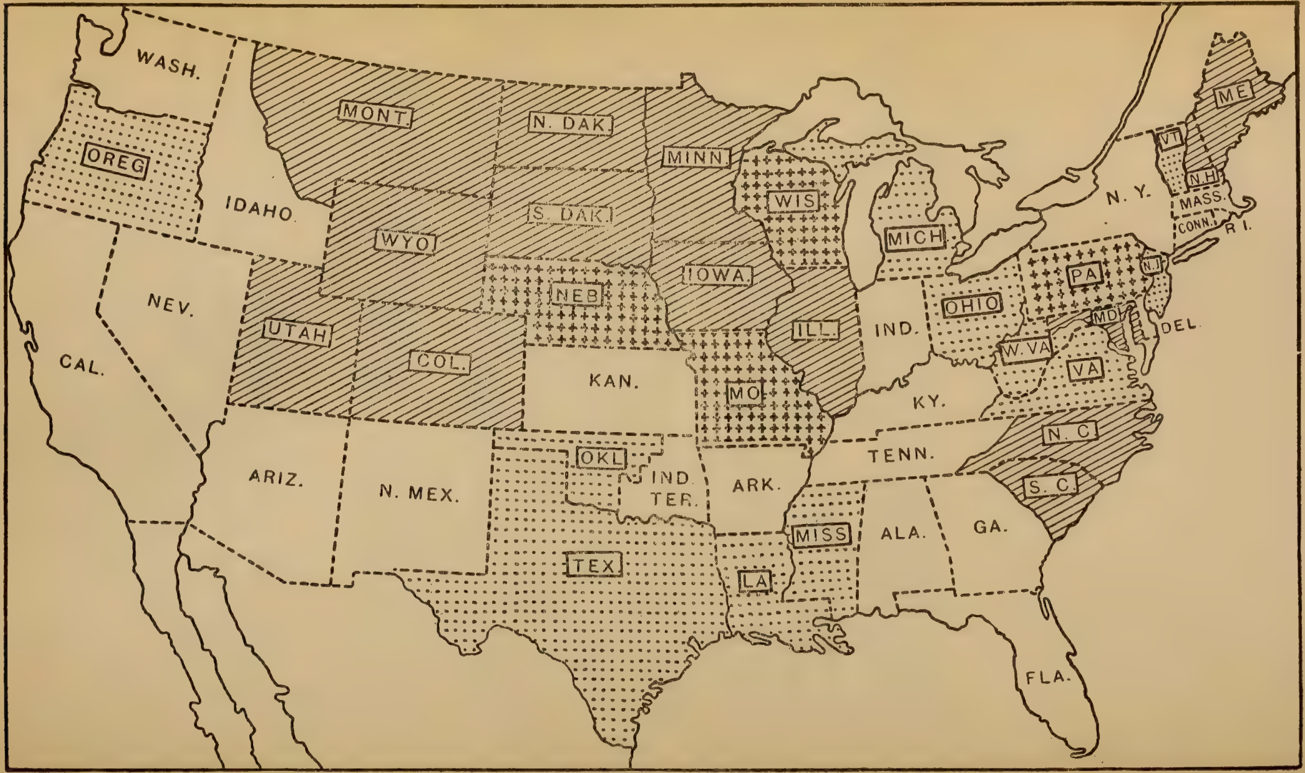
SEIZURE OF ILLEGAL APPLIANCES.

A number of States denounce certain methods and means of hunting game, and, as a rule, provide that the use of proscribed appliances shall forfeit them to the State and that they shall be destroyed. To facilitate and legalize such destruction these articles are usually declared to be public nuisances and liable to summary abatement when found in use for capture of game or fish.

The Supreme Court of the United States has upheld a provision in the New York law authorizing the summary destruction of fish nets illegally used. In Lawton *v.* Steele, this court declared: "Where the property is of trifling value, and its destruction is necessary to effect the object of the statute, we think it is within the power of the legislature to order its summary abatement." (152 U. S., 133.)

In Minnesota guns used in violation of law are frequently seized and, until a few years ago, were sometimes confiscated. The report of the board of fish and game commissioners shows a seizure of more than 60 guns during the period from March 1, 1900, to December 1, 1902. Some of these were retained and sold by the commissioners, while the rest were returned to the owners after investigation. The right to confiscate guns, however, was withdrawn under the act of 1905. In Nebraska a provision in the law of 1901 authorizing confiscation of guns was declared unconstitutional by the supreme court of the State in the case of McConnell *v.* McKillip (99 N. W., 505).

In South Dakota guns and dogs used in killing game contrary to law may be seized and sold, the proceeds to be paid into the county game fund; in Maine guns of unlicensed aliens who are found hunting may be seized and sold; and in Ohio guns and boats may be seized when used illegally and upon due adjudication by a competent court turned over to the commissioners of fisheries and game to be sold and the proceeds placed in the State treasury to the credit of a fund to be used by the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DISPOSITION OF SEIZED GAME.

Ruled areas show States which direct that seized game be sold; crossed areas States which direct that it be given to charitable institutions; dotted areas States which leave its disposition to courts, etc.; blank areas States which make no provision for its disposition.

commissioners for the purposes of game protection. Wisconsin declares the following public nuisances: Nets spread upon or under any waters of the State which might ensnare wild fowl; any trap, snare, spring gun, set gun, or device which might entrap or kill any protected game or birds; boats, lamps, and lights used in unlawful pursuit of game; any pivot or swivel gun or any firearm not habitually held at arm's length and discharged from the shoulder when in unlawful use; any boat, floating raft, box, or blind set in open water or outside a natural growth of grass sufficiently high to conceal the same or an artificial blind set in open water for the unlawful pursuit and hunting of ducks, geese, and brant; decoys set in close season for waterfowl or more than 200 feet from cover. And the statute also provides that—

> The unlawful use of any of the articles mentioned in this section, contrary to the provisions of law, shall forfeit the same to the State, and upon their being found under any of the conditions which shall render them public nuisances as specified herein they may be immediately destroyed.

In Pennsylvania all officers charged with the duty of protecting game have the power to seize guns and shooting paraphernalia belonging to nonresidents and unnaturalized foreign-born residents hunting without license, and to hold them subject to payment of the fine and costs. At the expiration of five days, if the fine still remains unpaid, they are authorized to advertise them for sale and sell them ten days after such date and apply the proceeds to payment of costs and penalty. If there be an amount in excess of these charges it is returned to the owner of the property. It is customary in some states to add a provision in the law exempting officers from liability for searches and seizures, even for wrongful seizures. Thus, Illinois provides in the game law of 1903:

> Sec. 24. The State game commissioner, game wardens and deputy wardens shall not be liable for any damage or costs sustained by any persons or corporations by reason of the wrongful seizure of game, deer, wild fowl, or birds under this act.

PROSECUTIONS.

WHO MAY PROSECUTE.

Ordinarily any person may institute a prosecution for the violation of the game laws without the consent or sanction of an officer. In Illinois and Nebraska it is specifically provided in the game law that prosecutions may be brought by any person in the name of the State, but in New Jersey proceedings for recovery of penalties under the game laws can be brought only by the fish and game protector, or a fish and game warden, police officer, constable, or member of an incorporated fish and game protective association. In New York actions for penalties under the game laws must be brought on the order of the forest, fish, and game commissioner, except that private persons, upon giving security for costs, and societies or corporations may recover penalties in their or its own name if notice of the institution of such action be given the commissioner or chief game protector within fifteen days after service of the summons. In Ohio prosecutions by wardens or police officers for offenses not committed in their presence can be instituted only upon the approval of the prosecuting attorney or under direction of the attorney-general. Oregon and Tennessee declare that prosecutions for violation of certain provisions of their game laws *must* be brought on the order of the State warden. Whether this excludes others from instituting prosecutions or not is uncertain. In Michigan, Oklahoma, Texas, West Virginia, and Wisconsin the State game wardens may make complaint and cause proceedings to be commenced without the sanction of the prosecuting attorney and they need not furnish security for costs. They are authorized to appear in any court in any case and prosecute it in the same manner and with the same authority as the prosecuting attorney.

ATTORNEYS.

In some States no general provision has been made for an attorney to prosecute offenders in the inferior courts, and in such cases unless an attorney voluntarily tenders his services or is employed by the warden or private parties the justice or magistrate before whom the case is pending must conduct the State's prosecution. This often results in a miscarriage of justice and offenders escape the punishment prescribed by statute. To meet this difficulty Colorado, Idaho, Illinois, Minnesota, Maine, Montana, Nebraska, Oregon, and a few other States have inserted in their game laws a provision requiring the prosecuting attorneys to conduct game cases for the State. In some of these States the prosecuting attorneys are required to institute the prosecution whenever they receive information or have personal knowledge of the offense. The Kansas game law authorizes the magistrate having proper jurisdiction to employ an attorney to conduct the prosecution, upon neglect or refusal of the proper prosecuting officer to do so, and directs that such attorney shall receive a fee of $10, to be taxed as costs against every convicted defendant.

The game commissions and State wardens very generally have regularly employed attorneys, even in the absence of special authorization, as only a few States make provision for such officers. The Minnesota commission is empowered to employ an attorney or attorneys to perform such legal services as may be required, and such attorney is required to appear for the commission in any civil action in which it or its wardens may be officially interested, and he may assist the county attorney in all criminal prosecutions, or, when for any reason the county attorney does not act, may conduct the prosecution with the same authority as that officer. His compensation is paid from the funds provided for enforcement of the act. The forest, fish, and game commissioner of New York is authorized by the game act to employ necessary counsel in his office and to appoint an attorney to represent the department in the prosecution or defense of any proceeding brought under the game law. The compensation of these officers is paid from the general treasury. The law of Wyoming also authorizes the State game warden, when he deems it necessary, to employ an attorney, whose compensation is to be paid from the State game fund, to prosecute violators of the game laws.

MODE OF ACCUSATION.

An indictment is a written accusation presented by a grand jury to a competent court, charging a person with the commission of a crime. An information is a written statement, usually under oath, by a prosecuting attorney on behalf of the State, charging a person with the commission of a crime. A complaint or affidavit (for the purposes of a prosecution) is a statement under oath, made by *any* person, charging another with the commission of a crime.

These are the modes of accusation in use in criminal law, though, as elsewhere stated in this bulletin, a few of the States enforce their game laws or certain features of them by a proceeding in the nature of a civil suit for the recovery of penalties.

Which one of the modes is appropriate in any particular case depends upon statutory regulation and the character of the offense, and both of these differ widely in the several States. Indictment lies for offenses of the graver sort, those punishable with imprisonment in the State prison or for long terms in a county jail, and is the mode most frequently adopted in cases cognizable by courts of general jurisdiction and in the Federal courts.

At common law an information was allowed only in cases of misdemeanor, but in the United States the practice is not uniform, and the constitution and statutes of each State must be consulted to determine where and under what circumstances and in what prosecutions it lies. In many States and instances indictment and information are concurrent remedies, and either mode may be pursued. Where such is the case, information seems to be the most expeditious and satisfactory remedy. But this latter, like an indictment, is usually confined to prosecutions of which the superior courts entertain jurisdiction.

Complaints and affidavits are the usual modes of procedure before justices of the peace and other inferior courts exercising limited jurisdiction. As offenses against the game laws are ordinarily misdemeanors and triable by such courts this mode of accusation is the one most commonly employed.

The maximum fine and term of imprisonment prescribed for a violation of the game law ordinarily determine what court has jurisdiction of the offense, and consequently what mode of accusation is appropriate.

STATUTES OF LIMITATION.

At common law a person committing a crime can be punished at any time, no matter how great the period intervening between the commission of the offense and his apprehension. But it is the policy in this country to set at rest criminal charges after the lapse of a specified time. With the apparent exceptions of South Carolina and Wyoming, every State has assigned a time within which a criminal action must be commenced; otherwise the defendant can not be legally convicted. The statute usually begins to run from the commission or consummation of the offense, but in a few States it runs from the time of discovery of the crime. A general statute ordinarily controls this subject, but the limitation is specifically prescribed by the game law in Illinois, Michigan (certain offenses), Minnesota, Pennsylvania (certain offenses), Rhode Island (certain offenses), and South Dakota (offenses concerning small game). A comparison of such limitations shows the average time to be one year. California, Colorado, Montana, and Wyoming make violation of certain provisions of their game laws, felonies, and in the first three States this has an important bearing upon the limitation of the prosecution. Felonies in California and Colorado may be prosecuted within three years, and in Montana within five, whereas in California and Montana mere misdemeanors are barred after one year and in Colorado, after a year and a half. The offenses which are declared felonies by the game laws in these States are as follows: California, killing elk; Colorado, killing buffalo; Montana, shooting or killing moose, caribou, or buffalo at any time or deer, antelope, elk, goat, or sheep in close season, exceeding the bag limit on these animals, and hunting without license by nonresidents; Wyoming, killing or catching buffalo, or removing them from the State, and killing, capturing, or destroying big game solely for their heads, antlers, horns, or tusks.

It frequently happens that persons who violate the criminal laws leave the State immediately or before the expiration of the time within which the prosecution must ordinarily be commenced. If no exception to the running of the statute were made to meet such cases offenders might return to the State in security after the usual limit of time had expired. To avoid this contingency, it is now very generally, if not universally, provided that the time of absence of the defendant from the State shall not be counted as part of the period of limitation. The laws of some States contain other exceptions also, as when the defendant conceals himself, is a nonresident, or practices some fraud upon the officers of the law.

The following table is intended to present in compact form the periods of limitation applicable to prosecutions and actions for violations of the game laws:

Time within which Criminal Prosecutions and Civil Actions for Violation of Game Laws must be commenced.

State.	Criminal prosecution.	Civil action.
Alabama	1 year in the circuit, county, or city courts.	
	60 days before justice of the peace	
Alaska	3 years[a]	
Arizona	2 years	
Arkansas	1 year	
California	3 years (felony)	
	1 year (misdemeanor)	
Colorado	3 years (felony)	6 years for possession or value of game.
	1½ years (misdemeanor)	
Connecticut	1 year	
Delaware	2 years	
District of Columbia	3 years[a]	
Florida	2 years	
Georgia	2 years	
Idaho	1 year	
Illinois	6 months	2 years, action of debt for recovery of penalty under license section.
Indiana	2 years	
Indian Territory	3 years[a]	
Iowa	3 years	
	1 year before justice of the peace (fine not exceeding $100 or imprisonment 30 days).	
Kansas	2 years	
Kentucky	1 year	
Louisiana	1 year	
Maine	6 years	2 years.
Maryland	1 year	
Massachusetts	6 years	
Michigan	6 years	
	1 year for violations of secs. 5804–5809, Comp. Laws of 1897.[b]	
Minnesota	2 years	

[a] Under Federal statutes.

[b] Prohibiting possession or capture for export of fish or game, and sale of quail, partridge or woodcock.

Time within which Criminal Prosecutions and Civil Actions for Violation of Game Laws must be commenced—Continued.

State.	Criminal prosecution.	Civil action.
Mississippi	2 years	
Missouri	1 year	
Montana	5 years (felony)	2 years.
	1 year (misdemeanor)	
Nebraska	1½ years	1 year, action for recovery of penalty imposed upon common carriers illegally transporting game.
	1 year (fine not exceeding $100 or imprisonment 3 months).	
Nevada	1 year	
New Hampshire	6 years	
	1 year (fine not exceeding $100 or imprisonment 6 months).	
New Jersey	2 years	2 years.
New Mexico	2 years	
New York	2 years	1 year where whole or part of penalty is allowed person prosecuting for same. 2 years, by the State.
North Carolina	2 years	
North Dakota	2 years	
Ohio	3 years	
Oklahoma	3 years	
Oregon	2 years	
Pennsylvania	1 year	
Rhode Island	2 years (fine to the State)	
	1 year (fine or any part to prosecutor).	
	90 days, for violations, as to birds	
South Dakota	1 year small game	
	3 years, big game	
Tennessee	1 year	
Texas	2 years	
Utah	3 years	
	2 years, before a justice of the peace	
Vermont	3 years	
Virginia	1 year	
Washington	1 year	
West Virginia	1 year	
Wisconsin	3 years	2 years.

SEPARATE OFFENSES.

The practice of making a violation of law, as to each individual animal or bird or each unlawful act or omission, a separate offense, and punishable as such, is so general at the present day that scarcely a State fails to include it in some part of its game law. The provision has much to commend it, especially where the policy of the State is to inflict small fines or short terms of imprisonment. Under the laws of North and South Carolina each day that a nonresident hunts without a license is declared a separate offense.

The New York scheme of penalizing the offense and adding a penalty for each bird or quadruped constituting the subject of the violation is the same in effect and so is the scheme adopted by several States of affixing a stated fine for each bird or animal in respect to which the offense was committed, however the procedure in the three cases may differ as to the number of complaints or indictments. In the first case as many prosecutions may be instituted as there are individual birds or animals involved in the violation, and this has reference rather to procedure, while in the last two cases only one indictment or action lies, however many the individual birds or animals involved in the violation, and this has reference more to the degree of punishment to be inflicted. These schemes of punishment have not escaped attack in the courts upon alleged constitutional grounds, but it may safely be asserted that there is no longer any doubt that the provisions are valid and constitutional.

In September, 1903, one Poole, of Jackson County, Minn., had in his possession for purposes of sale 2,000 wild ducks, in violation of the game law of that State. He was indicted, tried, and convicted under that section of the game law which declared that any person having in his possession with intent to sell any wild duck should be punished by a fine of not less than $10 or more than $25, or by imprisonment for not less than 10 or more than 30 days, for each and every duck so possessed. The court imposed a fine of $20,000 upon Poole, with the alternative that he be imprisoned until the fine was paid, but not longer than 200 days. From this sentence Poole appealed to the supreme court of the State, urging among other grounds for reversal of the judgment that the statute was unconstitutional, because it was in violation of that part of the State constitution which prohibited the infliction of excessive fines or cruel and unusual punishments. The defendant's contention was overruled and the sentence of the lower court affirmed. In disposing of the case[a] Chief Justice Start, who wrote the opinion, remarks:

> If the penalty were not graduated, so that the greater the offense the greater the punishment, the statute would invite its own defeat. It would be absurd to punish the unlawful possession of 2,000 or more birds on the basis of one. * * * So, in its last analysis, the fines imposed in this case are seemingly excessive, not by reason of the statute but by reason of the magnitude of the offense. * * * The fault is theirs, not that of the statute.

In a few States, where each bird or animal is made the subject of a separate offense, in order to obviate the necessity of filing a separate indictment or complaint for each one, it is provided that two or more offenses may be charged in the same complaint, information, or indictment; and it is further provided in Alabama, Colorado, and Nebraska that violations as to any number of animals or birds of the same kind may be charged in the same count and punished as a separate offense as to each animal or bird.

SPECIAL EVIDENCE.

The defendant having been arraigned—that is, required to state whether or not he is guilty of the charges alleged in the affidavit, complaint, information, or indictment, as the case may be—and answering not guilty, it devolves upon the prosecution to prove the charges by the production of evidence. Experience has shown the impossibility or extreme difficulty of proving the details of some crimes by direct evidence; hence the provision so frequently found in criminal statutes declaring that certain facts or conditions connected with the subject of the statute shall be prima facie evidence of certain acts that are unlawful or of a violation of law. The effect of the provision is to cast upon the defendant the burden of proving that he is not guilty of the acts charged against him. A review of the game laws of all the States demonstrates how extensively this provision has been adopted. Were it not so, many violations would remain unpunished. The provision is often inserted in a statute which grants to the person some privilege in derogation of the policy of the State, where it serves as a safeguard against the abuse of such privilege and relieves the State of the burden of proving that the act done or suffered does not come within the privilege. Thus, in South Carolina, while the sale of domestic quail is prohibited, imported quail may be sold; but possession or sale of such imported birds is prima facie evidence of violation of law, and the statute casts upon the person handling quail the burden of proving that they were imported. (Acts of 1906, No. 53, sec. 1.) The numerous and diverse acts and conditions which have been declared prima facie evidence of violation of the game laws are shown in the following table:

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[a] State *v.* Poole, 100 N. W., 647.

What constitutes Prima Facie Evidence of Violation of the Game Laws.

State.	Facts.	Prima facic (or presumptive*) evidence that—
Alabama	Possession of artificial light while hunting.	Possessor used it in hunting deer.
Arizona	Possession of game which does not show evidence of having been taken otherwise than by net, snare, trap, or pound.	Possessor so took it.
California	Possession of game which does not show evidence of having been taken otherwise than by net, pound, cage, trap, set line, wire, or poisonous substance.	Possessor so took it.
Colorado	Possession of game unaccompanied by proper and valid license, certificate, permit, or invoice.	It was unlawfully taken and is unlawfully held.
	Mention of game on menu of hotel, restaurant, café, or boarding house.	The proprietor has it in possession.
	Possession of game in the field	Possessor is or has been engaged within a year in hunting it.
	Pamphlet of game laws and regulations, published by the State game and fish commissioner.	That such laws, rules, and regulations are in force in the State.
Connecticut	Possession of quail, partridge, and woodcock in close season.	They were illegally taken by possessor.
	Reception by person or common carrier of quail, grouse, or partridge, and woodcock for shipment in unmarked package or addressed to a point out of the State.	They were killed in the State for purpose of export.
	Possession by trespasser of gun, dog, ferret, or fish rod.	Possessor intends to hunt or fish on the land.
Delaware	Possession of wild fowl by person who has, at the same time, a swivel or punt gun, or is on the water at night with artificial light.	They were killed by such person with such illegal devices, and of unlawful hunting.
Georgia	Possession of game or eggs of protected birds when arrest made for violation of law.	Law has been violated.

*Presumptive evidence.

What constitutes Prima Facie Evidence of Violation of the Game Laws—Continued.

State.	Facts.	Prima facie (or presumptive*) evidence that—
Illinois	Sale, exposure for sale, or possession for sale of squirrel, quail, ruffed grouse, prairie chicken, woodcock, dove, snipe, plover, and waterfowl after the first 5 days of close season or during first 2 days of open season.	Law has been violated.
	Possession of foregoing game by common carrier for transit through the State from without during close season.	Same was snared, trapped, netted, or killed contrary to law.
Iowa	Possession of game during close season, except first 5 days thereof.	*Law has been violated.
Kansas	Possession of game or nongame birds by any person or corporation except one who has lawfully killed same, or of Hungarian partridge, English, Mongolian, or Chinese pheasant in close term.	Law has been violated.
Maine	Possession of firearms at night in vicinity of ducking grounds in Merry-meeting Bay or on Kennebec River south of Randolph and Gardiner bridge.	Possessor is hunting ducks contrary to law.
	Possession of firearms by unlicensed alien on wild lands or in woods.	Possessor is hunting contrary to law.
	Transportation of moose and deer contrary to law.	They were killed contrary to law.
Maryland[a]	Proof that person charged with hunting game birds at night was at or about the place where the shot was fired, and that he had a gun in his possession before, at the time of, or after such shooting.	Such person is guilty.
	Possession, sale, or disposition of big or swivel gun.	Gun is possessed, sold, or disposed of for purpose of shooting or killing wild fowl.
Massachusetts	Possession of quail during season when killing and sale are prohibited, except under storage permit.	Possessor has violated some provision of the act (ch. 303, L. 1906).
	Possession of prairie chicken and sharp-tailed grouse.	Possessor has violated the act prohibiting sale, purchase, and possession of said birds.
	Possession of wood duck	Act prohibiting hunting of said birds has been violated.
	Constructing or setting a trap, snare, or net adapted to taking or killing game birds, hares, or rabbits upon premises frequented by them.	Defendant intended to take or kill them contrary to law.
	Possession of a ferret in place where rabbits or hares and game birds might be taken or killed.	Possessor has used it contrary to law.
	Possession of deer killed in Massachusetts.	Possessor killed, caught, or captured it contrary to law.
Michigan	Hindering or interfering with State warden and deputies in their search of persons or places for illicit game.	Law has been violated by person so doing.
	Possession of deer in red coat and fawn in spotted coat.	Law prohibiting killing of such game has been violated.
	Wearing or possession of artificial light in the woods.	Deer have been hunted illegally.
	Proof of possession of dead body, carcass, or skin, or any part thereof, of game in close season.	Game was killed in close season.
	Possession or control of game	It was killed in Michigan.
	Whenever it is proven that game was killed outside of Michigan.	It was taken, killed, or exported contrary to laws of State where killed or taken.
Minnesota	Possession or control of game	It was the property of the State at the time it was caught or killed; and it was caught or killed in Minnesota.
	Possession of game in close season unaccompanied by tag of the commission.	It was taken or killed in close season.
Missouri	Wearing artificial light on the head	Deer have been hunted illegally.
Montana	Possession of dead bodies or parts of game.	Possessor killed the same.
	Possession of gun in fields or forests or on or about the waters of the State by unlicensed nonresident.	Law has been violated.
Nebraska	Possession of game and song birds unaccompanied by proper and valid license, certificate, permit, or invoice.	Capture or possession is unlawful.

* Presumptive evidence.

[a] In addition to this general law, certain acts are declared to be prima facie evidence of violation of law under several of the county laws.

What constitutes Prima Facie Evidence of Violation of the Game Laws—Continued.

State.	Facts.	Prima facie (or presumptive*) evidence that—
Nebraska	Possession of game and song birds during close season for shipment or in transit.	Law has been violated.
	Mention game on menu of hotel, restaurant, café, or boarding house.	The proprietor has it in possession.
New Hampshire	Possession of carcass, hide, or part of moose, caribou, elk, or fawn at any time, or of more than 2 deer in open season or of any deer or other game animal in the close season.	Possessor hunted and killed the same contrary to law.
New Jersey	Possession of deer and waterfowl in close season.	Possession is unlawful.
New York	Possession of deer or venison from Nov. 15–24.	*It was unlawfully taken by possessor.
	Possession of flesh or portion of moose, elk, caribou, and antelope in open season for deer.	*Such game was unlawfully taken by possessor.
	Possession of grouse and woodcock, except under bond.	*They were taken in New York.
	Possession or sale of woodcock, grouse, and quail in December.	*They were unlawfully taken by possessor.
North Carolina	Reception by person or corporation of quail, pheasants, turkeys, snipe, woodcock, and nongame birds for shipment to point beyond the State.	They were killed in the State for purpose of export.
Ohio	Finding of any gun, net, seine, boat, trap, or other device, set, maintained, or in use in violation of law.	Person owning, using, or making claim to same is guilty.
	Finding of birds or game unlawfully in possession of any person.	Such person is guilty.
	Reception of game and birds for shipment to point out of the State.	They were killed in Ohio for purpose of export.
Oklahoma	Possession or control of game and birds.	They were killed in Oklahoma.
	When shown that game was caught or killed out of the Territory.	It was caught, killed, or shipped contrary to law of State or Territory where killed.
	Resisting, hindering, or interfering with wardens in their search of persons or places for evidence of violation of law.	Law has been violated by person so doing.
Oregon	Possession of game and birds in close season, unless kept for scientific, breeding, or exhibition purposes, or as pets.	Possessor took, caught, killed, or possessed same in county where found in close season.
	Hindering or interfering with State game and forestry warden in his search of persons or places for evidence of violation of law.	Law has been violated by person so doing.
Pennsylvania	Possession of game, fish, skin, carcass or part of thereof in close season.	Law has been violated by possessor.
	Possession of a gun in the fields, forests, or on waters of the State by unnaturalized foreign-born resident or a nonresident who has no license.	Law has been violated by possessor.
	Possession of body or skin, or part thereof, of game animal or bird except in open season and 15 days thereafter.	Possession is unlawful.
Rhode Island	Possession of any bird in close season.	It was taken or killed contrary to law.
South Carolina	Possession of more than 12 wild fowl, killed on public lands, marshes, and watercourses by a person who has no license (when one is required).	Person is hunting without license and contrary to law.
	Reception of game for shipment out of the State.	It was killed in the State for such purpose.
	Handling, possession, control, or ownership of quail, turkey, woodcock or pheasant sold, offered for sale, shipped, or exported.	Law has been violated and such birds were not imported from another State or Territory.
	Reception by person or corporation of partridges, grouse, wild turkeys, snipe, woodcock, or other game for shipment to points outside the State.	They were killed in the State for purpose of export.
South Dakota	Possession of game birds by person or carrier.	*Law has been violated.
	Possession of shotgun and dogs ordinarily used for hunting game birds, outside the immediate bounds of any city, village, or town from July 1 to Sept. 1.	Law has been violated or an attempt made to violate it.
	Finding of traps, snares, or other devices used for trapping game birds, in possession of or on premises of any person.	Law has been violated or an attempt made to violate it.

* Presumptive evidence.

What constitutes Prima Facie Evidence of Violation of the Game Laws—Continued.

State.	Facts.	Prima facie (or presumptive*) evidence that—
South Dakota	Possession of big game, or parts thereof, in excess of bag limit.	Law has been violated.
Tennessee	Exposure or offer for sale of quail	Shipment is unlawful.
Texas	Possession of game or birds in close season.	Possessor is guilty.
Utah	Possession of game or birds in close season.	Of unlawful taking, killing, or possession.
Vermont	Possession of moose or caribou	*It was killed in Vermont and contrary to law.
	Finding of dogs of kind commonly used to hunt deer, moose, and caribou, and of other kinds known to follow such game, in act of hunting, pursuing, or killing deer, moose, or caribou.	Such dogs were permitted to run at large in the forest and so hunt.
	Possession of firearm, torch, jack, or artificial light on waters of the State or shores thereof after sundown.	*Possessor is illegally hunting ducks.
	Delivery to or reception by any person or corporation of game birds for shipment out of State.	They were killed and are possessed for other purpose than consumption within the State.
	Possession of game by common carrier in close season.	*It was taken in the State contrary to law.
Virginia	Possession of gun larger than 8 bore and sneak boats, nets, traps, reflectors, or other unlawful appliances.	Of guilt of person possessing them
	Possession of game or parts thereof in close season.	Possessor is guilty.
	Possession of Mongolian or English pheasants, except for propagation.	Taking or possession is illegal.
	Possession or sale of nongame birds	Defendant is guilty.
Washington	Possession of game, except number of ducks, geese, brant, and snipe permitted to be taken in November.	*They were unlawfully taken by possessor.
	Proof of possession of game in close season or song birds at any time.	Taking by possessor was illegal.
West Virginia	Possession of recently killed deer or fresh deerskin, wild turkey, quail, pheasant, or ruffed grouse in close season.	*Possessor killed it.
	Reception of above game for shipment to point outside the State.	Same were killed for purpose of export.
	Exposure for sale of game in close season.	Same was unlawfully killed or caught in West Virginia.
	Hindering or interfering with wardens in their search of persons and places for evidence of violation of law.	Person so doing has violated the law.
Wyoming	Possession of tusks, hides, scalps, or horns of game animals in excess of number allowed by law.	Wanton and malicious waste, and destruction of game has occurred contrary to law.
	Possession of carcass, skin, scalp, antlers, and tusks of game animals in excess of number allowed to be killed.	Possessor has exceeded the bag limit.

*Presumptive evidence.

The Colorado provision declaring that the pamphlet containing the game laws and regulations published by the State game and fish commissioner "shall be prima facie evidence and shall be taken as such in all courts of this State of the existence of such laws, rules, and regulations," might be adopted to great advantage in all those States issuing pamphlets of the game laws, since it would dispense with the necessity of procuring a copy of the statutes, which are not always readily accessible.

In Kansas it is unnecessary in any prosecution for the violation of the game laws "to state in the complaint the true or ornithological name" of a bird or "to state in the complaint or to prove at the trial that the catching or killing or having in possession of any wild bird * * * was not for the sole purpose of using or preserving it as a specimen for scientific purposes."

In order to procure evidence of violation of game laws the game protectors of Pennsylvania are authorized to purchase and sell any game, but after the purpose for which it was bought has been satisfied it must be forwarded to the nearest hospital for the use of the inmates thereof.

Under the common law, and in conformity to constitutional prohibition in most if not all the States, no person can be compelled to testify against his will in any criminal proceeding to any fact that may tend to convict him of a crime. There are many violations of the game laws that could not be punished unless testimony of participants in the violation could be adduced, and the protection accorded such persons under this exemption would render the State powerless to procure the necessary evidence to convict were the law to go no further. But several States have incorporated in their game laws provisions extending exemption from punishment to any witness testifying to facts in any prosecution against another which might be used against himself in a prosecution for the same offense. The Minnesota and South Dakota laws contain examples of such provisions. Other States have taken a more advanced position and declared that under the game laws no person shall be excused from testifying in any prosecution on the ground that his testimony might tend to incriminate him or subject him to a criminal prosecution. But in every such case the statute provides that such testimony shall not be used against the witness. Such is the language of the laws of Colorado, Maine, and New Jersey. The Maine statute is as follows:

> In any prosecution under this chapter, any participant in a violation thereof, when so requested by the county attorney, commissioners, or other officer instituting the prosecution, may be compelled to testify as a witness against any other person charged with violating the same, but his evidence so given shall not be used against himself in any prosecution for such violation. (Rev. Stats., 1903, ch. 32, sec. 59.)

It is doubtful whether any of these provisions is enforceable, should a witness see fit to claim his privilege, for the reason that it only restricts the State so far as using his testimony given at the trial is concerned, and does not protect him against subsequent prosecution for a violation of the game law, some intimation of which may be given by his examination. To be valid and enforceable such a provision must afford absolute immunity against future prosecution for the offense to which the testimony relates.[a] The New York game law contains a provision measuring up to this test, which is as follows:

> SEC. 193. * * * A person called for the people and so testifying shall not thereafter be liable to indictment or conviction for the violation or violations of this act respecting which he has so testified, and may plead or prove the giving of such testimony in bar of such an indictment or conviction.

A very wise precaution against the failure of a prosecution on account of insufficiency of evidence to establish the charge of an offense as to an entire bird or animal is taken in several States by the express provision in the game law, for example, that of Colorado, that

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[a] See Counselman *v.* Hitchcock, 142 U. S., 547; Brown *v.* Walker, 161 U. S., 591.

"proof as to a part of an animal shall be sufficient to sustain a charge as to the whole of it." The contention has sometimes been made that a statute simply prohibiting the possession, sale, or other disposition of certain specified birds or animals, without mention of the parts thereof, could not be invoked against a person dealing in heads, horns, hides, flesh, plumage, or any other constituent part of game or birds. To obviate such contention and set the matter at rest, the Colorado provision or one similar thereto should be inserted in every game law.

FINES.

So much has already been stated in reference to 'Fines,' under the heads 'Game protection funds,' and 'Separate offenses,' that very little remains to be said here.

One phase of the subject, however, deserves fuller and more extended presentation. A number of cases involving the game laws have gone to the courts of last resort upon the ground that the fine authorized to be inflicted was excessive and that the statute was, therefore, in contravention of that clause of the State constitution prohibiting the imposition of excessive fines. The courts without exception in these cases have sustained the law and have held the following fines not to be excessive: One dollar for each lobster in Maine (State *v.* Craig, 13 Atl., 129); $5 for each lobster in Maine (State *v.* Lubee, 45 Atl., 520); $5 for each prairie chicken in Nebraska (McMahon *v.* State, 97 N. W., 1035); $10 for each duck in Minnesota (State *v.* Poole, 100 N. W., 647); $20 for each bird in Rhode Island (In re Stone, 41 Atl., 658; 21 R. I., 14); $50 to $75 for a wild duck in Wisconsin (State *v.* DeLano, 49 N. W., 808); and $100 for each deer in Minnesota (State *v.* Rodman, 59 N. W., 1098; 58 Minn., 393). One of the clearest and most satisfactory expositions of this question is found in the case of State *v.* Rodman (Minn., 1894), 59 N. W., 1098. In this case, which involved the unlawful possession of 58 deer, the maximum punishment provided by the statute was a fine of $5,800, or imprisonment in the county jail for about sixteen years. In the course of its decision, the court said:

> While the fines imposed are certainly large, yet we can not say that they are excessive, in a constitutional sense. A large discretion is necessarily vested in the legislature to impose penalties sufficient to prevent the commission of an offense, and it would have to be an extreme case to warrant the courts in holding that the constitutional limit had been transcended.

Ten years later the same court (the supreme court of Minnesota) as already explained (see p. 65) sustained the lower court in the imposition of a much larger fine—$20,000—for having in possession 2,000 wild ducks with intent to sell them.

The following table shows by comparison the amount of fine and term of imprisonment imposed by statute in the several States for three classes of offenses—killing deer and quail in close season, and for nonresidents hunting without license:

Comparison of Fines and Imprisonments provided for killing Deer and Quail in Close Season, and for Nonresidents hunting without License.

State.	Deer.		Quail.		Hunting without license.	
	Fine.	Imprisonment.	Fine.	Imprisonment.	Fine.	Imprisonment.
Alabama	$10 to $50		$10 to $25		$10 to $25	
Alaska	$200[a]	3 months[a]				
Arizona	$100[a]	100 days[a]	$100[a]	100 days[a]	$100[a]	100 days.[a]
Arkansas	$50 to $100		$50 to $100			
California	$25 to $500	25 to 150 days	$25 to $500	25 to 150 days	$10 to $100	10 to 100 days.
Colorado	$25 to $500	10 days to 6 months	$25 to $500	10 days to 6 months	$25 to $500	10 days to 6 months.
Connecticut	$500	30 days	$10 to $50, $10 each, additional.		$7 to $50	30 days.[a]
Delaware			$5 each		$5 to $50	Until fine is paid.
District of Columbia			$5 each	30 days to 6 months		
Florida	$25 to $100	3 to 6 months	$25 to $100	30 to 60 days	$100[a]	90 days.[a]
Georgia	$1,000[a]	6 months[a]	$1,000[a]	6 months[a]	$10 to $30	
Idaho	$300[a]	6 months[a]	$300[a]	6 months[a]	$300[a]	6 months.[a]
Illinois	$50 to $100	50 to 100 days	$15 to $50 each	10 days each.[a]	$25 to $50	30 days.[a]
Indiana	$50 to $200		$10 each		$25 to $100	30 to 60 days.
Iowa			$10 each	30 days	$25 to $100	30 days.[a]
Kansas			$5 to $100	Until fine is paid	$5 to $100	Until fine is paid.
Kentucky	$5 to $25 each		$5 to $25 each		$50 to $200	30 days.[a]
Louisiana	$1 to $5 each	30 days[a]	$1 to $5 each	30 days[a]	$25 to $50	60 days.[a]
Maine	$40 each		$5 to $10 each		$25 to $100	
Maryland			$1 to $10		$10–$30	
Massachusetts	$100		$20 each		$50[a]	30 days.[a]
Michigan	$10 to $100 each	90 days[a]	$10 to $100 each	90 days[a]	$125[a]	100 days.[a]
Minnesota	$50 to $100 each	30 to 90 days each	$10 to $100 each	10 to 60 days each	$25 to $100	10 to 90 days.
Mississippi	$10 (min.)		$10 (min.)		$25 to $50	30 days.[a]
Missouri	$25 to $100		$25 to $50		$100 to $500	
Montana	$100 to $500	3 months in county jail to 1 year in State prison.	$25 to $500	90 days to 6 months	$50 to $500	1 month in county jail to 1 year in State prison.
Nebraska	$100 to $300	90 days[a]	$5 each	60 days[a]	$100[a]	60 days.[a]
Nevada	$50 to $500	6 months[a]	$50 to $500	6 months[a]		
New Hampshire	$200[a]	6 months[a]	$10 each	60 days	$50[a]	30 days.[a]
New Jersey	$100[a]		$20 each		$25	
New Mexico	$50 to $100	30 to 60 days	$50 to $100	30 to 60 days		
New York	$200	6 months[a]	$60, offense, $25 each, additional.	6 months[a]	$60	6 months.[a]
North Carolina	$50[a]	30 days[a]	$50[a]	30 days[a]	Discretion of court	Discretion of court.
North Dakota	$100[a]		$10 each[a]		$20 to $50	30 days.[a]
Ohio			$25 to $200	25 to 200 days	$25 to $200	25 to 200 days.
Oklahoma	$25 to $100	Until fine paid	$25 to $100	Until fine paid		
Oregon	$25 to $500	30 to 120 days	$15 to $200	7 to 100 days	$25 to $100	5 to 30 days.
Pennsylvania	$100	100 days	$25 each	25 days	$25	25 days.
Rhode Island	$500		$20 each		$50[a]	30 days.[a]
South Carolina	$10 to $20	10 to 20 days	$20	30 days	Discretion of court	Discretion of court.

South Dakota	$50 to $100	30 days	$10 each	5 to 30 days	$10 to $50; birds $25 to $200; animals	
Tennessee	$25 to $50	3 months *a*	$25 to $50	3 months *a*	$50	
Texas	$10 to $100	5 to 30 days	$10 to $100	5 to 30 days	$100 *a*	30 days. *a*
Utah	$10 (min.)		$10 (min.)		$10 (min.)	
Vermont	$100		$10 each		$5 to $100	
Virginia	$5 to $50	30 days *a*	$5 to $50	30 days *a*	$50	60 days. *a*
Washington	$10 to $500	5 to 250 days	$10 to $500	5 to 250 days	$10 to $100	5 to 30 days.
West Virginia	$20 to $50	10 days *a*	$25 to $50	10 days *a*	$25 to $100	10 days. *a*
Wisconsin	$25 to $100	2 to 6 months	$10 to $50	10 to 60 days	$50 to $100	2 to 6 months.
Wyoming	$25 to $100	10 to 90 days	$10 to $50		$25 to $100	10 to 90 days.

a Maximum.

IMPRISONMENT.

The only punishment authorized under many of the older game statutes was a fine, and if the defendant was impecunious he escaped punishment altogether. A very considerable proportion of offenders against the game laws are of this class, and experience has demonstrated that to secure obedience the alternative corrective, imprisonment, must be allowed; otherwise many violations go unpunished.

In some localities it is very difficult to secure conviction under the game laws where the punishment is limited to imprisonment alone. On the other hand such laws are often very lightly respected when offenders know that the only punishment is a fine. It would seem, therefore, that the provision in the penal clause of the game laws of most of the States authorizing fine or imprisonment, or both, is the proper scheme of punishment.

Some statutes declare that in default of payment the defendant shall be imprisoned till the fine is paid or until he is otherwise legally discharged, which is equivalent to the requirement that he be held until he resorts to the remedy usually provided for insolvent convicts, that is, proof of his inability to pay the fine. Another method of enforcing the penal clause exists in a few States, exemplified by Colorado, where it is directed that no person upon whom a fine is imposed shall be discharged therefrom on account of his inability to pay the fine, but must be imprisoned one day for each *five dollars* thereof. It is interesting to note the discrepancy in value placed upon a day's restraint of liberty. At the other extreme from Colorado is Arkansas, where the defendant must be imprisoned one day for each *seventy-five cents* of the fine. Still another form obtains in some States, where, as in Florida, the alternative of imprisonment if fines are not paid appears as a general statute applicable to all crimes.

It has been held by the courts that when a person is sentenced to pay a fine and, upon default, to be imprisoned till it is paid or defendant is discharged in pursuance of an enabling statute, such imprisonment, even if fully served, does not satisfy judgment for the fine, but such judgment remains in full force until collected. This is so by the game statute in New York. Such being the case it would seem that in order to bring the case to a finality and clear the records, the Colorado scheme is the best.

Among the cases resulting in imprisonment in 1906 may be mentioned the following: In Illinois two defendants, each of whom had killed a prairie chicken, were committed to jail for 10 days; for failure to pay fines one defendant was committed to jail for killing a pheasant, three for hunting without a license, one for hunting before sunrise, and one for killing quail out of season. In Michigan two defendants received a sentence of 60 days in jail and $100 fine each for attempting to ship venison out of the State, and another for shipping venison to market. In New Jersey one defendant was sentenced for 10 days for illegal possession of a blue jay, and another 10 days for killing one partridge. In North Carolina one defendant was imprisoned for 30 days for hunting on lands in Davidson County without permission. In Oregon one offender received a sentence of 12½ days for trapping beaver, and two others were committed to jail in default of payment of fines for killing deer out of season. (Yearbook U. S. Dept. Agriculture, 1906, pp. 535–536.)

COSTS.

A general statute in some States requires individuals instituting a prosecution to give security for costs. The object of the requirement is, of course, the protection of officers of the courts against loss of their fees by acquittal of the defendant, and for the additional purpose, in many cases, of forestalling ill-advised and unfounded prosecutions. To relieve wardens of the necessity of complying with this requirement it is customary to insert in the game act a provision making such exemption, which is illustrated by the following statute from the laws of Montana:

> The State game and fish warden, the deputy game and fish wardens, and the special deputy game and fish wardens, may make complaint and cause proceedings to be commenced against any person for violation of any of the laws for the protection or propagation of game or fish, and in such case he shall not be obliged to furnish security for costs. (Laws of 1901, H. B. 147, sec. 16.)

Pennsylvania has a special statute imposing the costs of prosecution under the game laws upon the county, in cases in which action is brought in good faith by any officer whose duty it is to protect game and birds, and the defendant is acquitted or for any legal cause fails to pay the costs (Laws of 1903, p. 213).

REWARDS TO INFORMERS.

Under early game laws almost the only provision for enforcement was the reward offered by the State of a part of the fine, commonly known as a moiety, to the informer. These statutes rarely omitted this provision, but with the advent of game wardens the practice has gradually fallen into disuse, and at the present day is retained in the game laws of comparatively few States.[a] It was never a success in this country, most men preferring to see the laws violated rather than appear as prosecuting witnesses against their fellow-citizens. Aside from sentiment, such a course was often hazardous to the property and even the life of an informer. There is no reason why the provision should be held in such disrepute, and since the purposes of game laws have been better understood and their necessity more forcibly demonstrated by the rapid depletion of game, an inducement of this character should accomplish its intended purpose. Officers of the law usually are allowed regular fees for their work, and there can be no just complaint against compensation to a private citizen who temporarily abandons his business and appears in court as a witness against the willful violator of a public statute.

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[a] Several of the counties of Maryland still adhere to the practice. Further details are contained in the table on page 37, showing the special disposition of hunting license fees and fines.

In this connection it should be noted that in some States a constitutional provision requires all fines to be paid into the State or county treasury to the credit of certain designated funds, usually the school fund. Before incorporating in a game bill a provision for payment of part of fines to informers or to a special fund, it is essential that the constitution of the State be consulted. It may be that a division of fines is authorized by some special wording of the constitution, as where it is directed that the 'net proceeds' of fines shall be applied to certain purposes. This question has arisen in the courts, and in Nevada (Ex parte McMahon, 26 Nev., 243; 66 Pac., 294) one provision of the game law was declared invalid because it allowed the informer part of the fine when the constitution declares that 'all fines collected under the penal laws of the State * * * shall be and the same are hereby solemnly pledged for educational purposes and shall not be transferred to any other fund for other uses.'[a]

On the other hand, the game law of Wisconsin, one section of which directed that two-thirds of the fines collected should be paid to the informer, was sustained as valid against the contention that it was unconstitutional because the constitution of that State declared that the clear proceeds of all fines collected in the several counties for any breach of the penal laws shall be set apart as a separate fund to be called the 'school fund.' (State *v.* De Lano, 49 N. W., 808.) The court held that 'clear proceeds' meant the amount of such fines left after making authorized deductions.

Under the Nebraska game law, in obedience to the constitutional provision, all fines collected for violation of the game law must be paid into the school fund, but the corporate authorities of any county, city, or village within whose jurisdiction such fines shall be recovered are required to pay to the complaining witness out of the general fund an amount equivalent to one-half the fine actually recovered.

A novel contention relating to the subject of payment of rewards to informers was made in the Illinois case of Meul *v.* People (64 N. E., 1106), where the defendant insisted that the game law was invalid, because one section directed that half the fine be paid the informer, and that such direction vested in the informer a right of which he could not be deprived by the governor, who, under the constitution, had the power to grant reprieves, commutations, and pardons after conviction for all offenses. The effect of such disposition of fines, it was contended, would be to take away from the governor this constitutional authority. This contention, however, was overruled by the court. In Georgia it has been held that where by statute a part of the fine or penalty is reserved to the informer, his right thereto becomes so far vested upon conviction and sentence that the governor can-not, by pardon, remit that part. (Parrott *v.* Wilson, 51 Ga., 255.)

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[a] See also State ex rel. Rodes *v.* Warner, 94 S. W., 962, holding that fines under the game law of Missouri must be paid into the county school fund.

As a substitute for the moiety system several States have authorized the offer of specific rewards for evidence leading to conviction in certain cases. In Kansas the act protecting antelope contains a section declaring that a person giving information leading to the conviction of anyone for a violation of the act shall be entitled to a reward of $25. Minnesota authorizes the commission to pay out of the funds at its disposal a reward of $50 for information leading to conviction in respect to moose and caribou, $25 in case of deer, and $10 in case of birds. The law of Wyoming authorizes the State game warden to pay a reward of $300 for evidence to convict any person of hunting big game for tusks, heads, horns, or antlers and allowing the carcass to go to waste.

REPORTS OF PROSECUTIONS.

In order that game officials may know the progress of protection and the work of deputy wardens, it is expressly provided in some States—for example, Alabama, Colorado, and Maine—that every magistrate or court before whom a prosecution under the game laws has been conducted or an appeal has been taken shall, within a certain time after disposition of the case, report the particulars to the State game officials. Usually this report must contain a statement of the offense and the result of the trial, show whether or not the fine was paid, and if so, what disposition was made of it, and if not, what punishment was inflicted upon the defendant.

EFFECT OF REPEALS.

A bill for the protection of game intended to repeal all former game laws should always contain a saving clause at the end. Otherwise it might be contended by some defendant who had violated the old law that a prosecution could not be maintained because the new law had repealed the old and thereby released him from such penalties as attached to the offense under the old law. Such a provision in the Colorado game law reads as follows:

> All acts and parts of acts in conflict with this act are hereby repealed, but such repeal shall not affect or abate any prosecution now pending or hereafter brought for any offense committed prior to the taking effect of this act, but the same may be prosecuted and punished as in said acts provided. (Div. M, sec. 9.)

CIVIL ACTIONS.

Game laws are usually enforced by criminal prosecutions in the name of the State or the people thereof, but a few States have directed that punishment for violation of such laws, or certain provisions, shall be inflicted by civil actions for recovery of penalties. These actions are similar to suits between private persons for recovery of damages, and all the rules of law applicable to civil procedure apply to them. In Illinois the fines for hunting without license and exceeding the bag limit may be collected by action of debt in the name of the people of the State. In New Jersey civil actions are sometimes resorted to and in New York the usual, if not the exclusive, method of procedure is a civil action instead of a criminal prosecution. Montana allows a civil action for recovery of all fines and penalties, and Wisconsin of certain penalties. In Colorado the commissioner may bring a civil action for possession of game taken, killed, or held in violation of law, or for the value thereof.

Since the celebrated decision in the case of Geer *v.* Connecticut (161 U. S., 519), in 1896, determining the status of game and other wild animals and birds, many States have incorporated in their laws a declaration that all wild animals and birds within the State are the property of the State. In some instances the assertion has gone further, declaring that no property, right, title, or interest can be acquired or maintained in any game except as permitted by the game law.

REPLEVIN.

The action of replevin lies for the recovery of personal property, goods, wares, merchandise, etc., wrongfully seized or detained, and is the remedy pursued by the owner to recover possession thereof.[a] A logical conclusion from the foregoing definition renders the action of replevin maintainable at the suit of the State for the recovery of game taken, killed, or held in possession in contravention of its statutes. An expression by the supreme court of Minnesota in the decision in the case of Thomas *v.* Northern Pacific Express Co. (75 N. W., 1120), sustains this conclusion. It is there said:

> Wild game belongs to the State in its sovereign capacity. No person can acquire any property in it except by catching or killing it at a time and in a manner authorized by law. If a person catches or kills it at a time or in a manner prohibited by statute, *it still remains the property of the State, which may reclaim it.*

Two States—Colorado and Nebraska—have incorporated in their game laws provisions for this remedy, which are given in full in Part III.

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[a] For notes on replevin suits see 'Free Shipment of Deer in Minnesota' in Forest and Stream, LIV, p. 68, Jan. 27, 1900; 'The Law Supreme' [in Illinois] in Am. Field, LXI, p. 2, Jan. 2, 1904; Ibid, p. 269, Mar. 19, 1904.

In many jurisdictions the plaintiff may couple with the action of replevin an alternative demand for damages, and if possession can not be restored the value of the game is recoverable. A novel provision in the Colorado law fixes the minimum value of each species of big game and of birds, and permits the commissioner of fisheries and game or any warden to bring a civil action for recovery of the value of any game killed, wounded, or held in possession in violation of law. The Nebraska law has a similar provision, but does not fix the value of the game. These States further direct that the writ of replevin shall issue without bond and that the pendency of a criminal prosecution for the same offense shall not affect or stay the civil suit, nor shall the action of replevin affect the right of seizure under other sections of the acts.

Action of replevin has frequently been resorted to by offenders against game laws to recover property seized by game officials. In 1904 this action was instituted in Nebraska for recovery of three shotguns from a deputy game warden, who had seized them while the plaintiff and two others were illegally hunting prairie chickens. At that time the Nebraska game law authorized seizure of the guns of those found violating the law, but contained no provision for a trial of the question of forfeiture. The district court of Boone County, where the action was brought, found for the plaintiff and decreed restitution of the guns, holding that the section authorizing the seizure and confiscation without a trial was unconstitutional. The warden appealed to the supreme court of the State, where the judgment of the district court was affirmed. (McConnell *v.* McKillip, 99 N. W., 505.)

In the same year an action of replevin was instituted in Colorado for the recovery of 300 deer hides, or for damages for their detention, from a deputy game warden, who had seized them on the ground that they were held in possession in violation of a provision of the game law requiring that any person who desired to keep such hides must have an officer's invoice. The case was tried in the district court of Mesa County and resulted in a verdict against the warden for $350, from which he appealed to the court of appeals, where the judgment of the district court was reversed. (Hornbeke *v.* White, 76 Pac., 926.)[a]

In 1896 an action of replevin was instituted in Wisconsin for the recovery of 12 gill nets, of the value of $60, which had been seized by the game wardens on the ground that they were set in Lake Winnebago for the purpose of fishing in violation of the game law. A trial by jury resulted in a verdict for the wardens. The case was appealed to the supreme court, which affirmed the judgment of the lower court. (Bittenhaus *v.* Johnston et al., 66 N. W., 805.)

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[a] See also People *v.* Johnson, 88 Pac., 184.

INJUNCTION.

The question has arisen repeatedly, and doubtless will recur frequently, as to whether an anticipated or persistent violation of the game law can be prevented by a proceeding in equity. It is a general rule of law that injunction will not lie to restrain the violation or intended violation of a penal statute.

> The rule is well settled that, where there is no threatened injury to personal or property rights, equity will not lend its aid by injunction to restrain the violation of public or penal statutes or the commission of penal acts. (State ex rel. Reynolds *v.* Capital City D. C., 56 N. E. (Ohio), 651.)

The only remedy or redress, therefore, of the State is a criminal prosecution, or, as heretofore stated, a civil action for the recovery of the prescribed penalty in those States where such procedure is permitted, after consummation of the offense. But in a few States an attempt to violate the game law is an offense, and under such a statute timely prosecution might prevent the consummation of the unlawful act.

It is doubtful whether a State has the power to provide for recourse to injunction in order to restrain an anticipated or continued violation of the game law, and, it seems, no State has attempted it. This remedy has, however, been frequently and successfully invoked to restrain persistent and repeated trespasses upon private property for the purpose of hunting, and thereby, indirectly, certain features of the game laws have been enforced.[a] The case of Kellogg *v.* King in California (46 Pac., 166), is a good illustration of the application of this principle. Kellogg, as trustee of the Cordelia Shooting Club whose preserve was situated in Solano County, Calif., applied to the superior court of that county for an injunction to restrain King and about forty others from trespassing upon the club's preserve, shooting ducks and other game thereon, and otherwise committing frequent depredations. The defendants resisted the suit on several grounds, among which it is only necessary to refer to the one denying complainant's right to resort to the remedy of injunction. The superior court dismissed the complainant's bill and rendered judgment for the defendants, from which the complainant appealed to the supreme court of the State, where the judgment was reversed and a new trial ordered, thus sustaining the right of the club to an injunction to prevent defendants trespassing upon its preserve.[a] It was decided that—

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[a] See article entitled 'Jailed for ignoring an Injunction,' in Am. Field, LXI, pp. 319–320, Apr. 2, 1904. Two market hunters were enjoined by the U. S. Circuit Court from shooting on the property of the Big Lake Shooting Club, in Mississippi County, Arkansas, and when they continued to trespass they were sentenced to 30 days each in the county jail for contempt of court.

> Injunction will lie to prevent trespassing on a game preserve whereby not only is game killed, but game is frightened away and deterred from returning, the remedy at law being inadequate.
>
> The prevention of a multiplicity of suits is ground for injunction in case of repeated trespasses by a large number of persons.

Another question connected with this subject has arisen as to whether the enforcement of an unconstitutional game act can be enjoined by this process. This question arose in Michigan in the case of Osborn *v.* Charlevoix Circuit Judge (72 N. W., 982). The complainant, O'Neil, filed a bill in the circuit court praying for an injunction to restrain Chase S. Osborn, State game warden, from enforcing the provisions of the fish law, which restricted the practice of fishing with certain nets, and authorized the seizure of such apparatus when so used. It was alleged in the bill that the law was unconstitutional. The circuit judge granted the prayer of the bill and injunction issued. Thereupon Osborn applied to the supreme court of the State for a writ of mandamus to compel the circuit judge to dissolve the injunction. In granting the writ the court said:

> If the law were unconstitutional, it would be available by way of defense to the criminal charge, and therefore no occasion for chancery to take jurisdiction for the want of an adequate remedy at law. It has never been found necessary or expedient that the validity and construction of criminal laws should be determined in chancery for the guidance of courts of criminal jurisdiction.

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[a] See also the South Carolina case of Chisholm *v.* Caines (67 Fed., 285), and the Arkansas case of the Big Lake Shooting Club, Harrison *v.* Fite (148 Fed., 781). Compare the decision in Rockefeller *v.* Lamora (New York), given in full in Forest and Stream, LXI, p. 28, July 11, 1903, with the statement of the case given in the Maine Sportsman, vol. 14, p. 202, June, 1907.

MISCELLANEOUS PROVISIONS.

The game laws contain many provisions that can not be conveniently grouped under the subjects heretofore presented, and hence are collected under the head of miscellaneous provisions. Some of these are highly interesting and very essential to proper administration.

PUBLICATION OF LAWS AND REPORTS.

Prompt publication of the frequent amendments to game laws in sufficiently large editions to meet all reasonable requirements is essential, and failure in this particular interferes seriously with enforcement. The volumes of session laws are inaccessible to a large part of the people, who must therefore rely upon some secondary but authoritative publication for a knowledge of such changes as have been made. Every State and Territory except Arizona, Georgia, Hawaii, Kentucky, Louisiana, Mississippi, Nevada, Oklahoma, and Rhode Island, publishes the full text of its game laws in pamphlet form for general distribution, and Arizona and Rhode Island issue abstracts. These pamphlets are usually published by the game department, but in a few instances they are issued by the secretary of state, and in Florida by one of the county wardens—the game warden of Lake County. In some States, such as Pennsylvania and New Mexico, where there is a large foreign element in the population, summaries of the laws are published in two or more languages. Three States—Alabama, Colorado, and New Hampshire—direct their game departments to publish and distribute the game laws; others make an appropriation for the purpose; but the majority leave the matter entirely to the discretion of the game officials. The number of copies to be printed is sometimes fixed by statute, as in Idaho and Wyoming, where it is placed at 5,000, in New Hampshire at 10,000, and in New York at 25,000 copies. Specific appropriations for printing the laws are made in four States—Idaho, $50; Wyoming, $250; Colorado, $300; and Pennsylvania, $300. Few States, however, have thus far provided editions large enough to meet the demand, for each hunter should be supplied with at least one copy of the game laws every year. The distribution in States which issue resident licenses can be readily and economically effected by placing at the disposal of each officer who issues licenses enough pamphlet copies to supply each licensee.

Nearly every State requires its game official or board to report on the work periodically, usually to the governor, but in a few instances to the legislature, and in Michigan and Texas to the secretary of state. These reports ordinarily cover a biennial period, sometimes an annual period, but in Alabama the commissioner is required to report only quadrennially, while in Montana he must submit a report semiannually. It is through these reports that the executive and legislative branches of the government, and more especially the general public, are informed as to what the game departments are accomplishing. Formerly such reports were brief, containing little more than a financial statement, but of late years their scope has been greatly enlarged, and statistics of hunting licenses, prosecutions, and seizures are very generally included. General articles on game protection and economic ornithology by recognized authorities and illustrated by colored plates are sometimes included, so that the volumes are valuable alike to the specialist and the general public. The reports of Indiana, Massachusetts, Montana, and New York are examples of this evolution. A feature which has lately begun to receive attention and may be made of great value both in framing legislation and for future reference is a statement of the condition of the game of the State in more or less detail. Reports containing such statistics are repositories of interesting and valuable information. Annual reports are required in Wisconsin and Illinois, but they are not published in separate form, although reports on certain phases of warden work in Illinois appear regularly in one of the leading sportsmen's journals. Provision by specific appropriation is made in several States for publication of game warden reports, and Colorado and Wyoming appropriate $200 for the purpose; Vermont fixes the number of copies at 2,000, and Indiana, by special act in 1907, ordered 10,000 extra copies of the last biennial report of the State game and fish commissioner.

CHARGE TO THE JURY.

For a long time in the history of this country it has been customary for the legislature to incorporate in certain criminal statutes a section or clause directing the judges of courts having jurisdiction of the matter to give the statute in special charge to the grand jury or to call its attention to the law. The object is, of course, to insure enforcement. Four States—Alabama, Georgia, Montana, and Tennessee—have included this provision in their laws, the language of the Tennessee section in the nongame bird law of 1903 being as follows:

> 9. That the grand juries of the circuit and criminal courts of the State shall have inquisitorial authority over all violations of any of the provisions this act, and upon probable cause, shall make presentment without prosecutor; and that the judges having criminal jurisdiction in the various counties in Tennessee shall give this Act specially in charge to the grand juries at every term of the courts. (Acts of 1903, ch. 118.)

SUSPENSION OF PROSECUTIONS.

It has been maintained that the right to suspend or remit fines is inherent in the judiciary and the function has been quite commonly exercised. There is no question that there are circumstances under which such action is just, humane, and expedient, but this power, like all others, is liable to abuse and allows petty judicial officers to nullify the game laws. Colorado has guarded against this danger by the following provision:

> No fine, penalty, or judgment assessed or rendered under this act, or the act to which it is amendatory, shall be suspended, reduced or remitted otherwise than as expressly provided by law. (Div. K, sec. 4.)

On the other hand the State warden of Tennessee is authorized by the game law to compromise or discontinue cases where the violations are technical, or where he believes the prosecution or fine would be oppressive. A clause in the Pennsylvania game law permits offenders to sign an acknowledgment of their offenses and pay the fine prescribed by law to any game warden, whereupon they are entitled to a receipt from the warden which shall be in full settlement of the charge. This course has the intended effect of relieving offenders from public prosecution and the embarrassment incident thereto. It is questionable, however, whether it is not better that full publicity be given all proceedings for the punishment of violators of the game laws, so that its deterrent influence may have full effect.

In order to prevent useless and frivolous prosecutions, Tennessee in 1907 inserted in the game law a proviso permitting the State warden, when informed of a violation, to visit the place and summon witnesses to testify under oath to any facts bearing upon it. By the statute a penalty of $25 to $50 is imposed upon anyone so summoned who refuses to attend or testify. This is a new feature in the administration of the game laws of this country and, while it has not been in operation long enough to test its practical value, it doubtless has merit, especially when there is reason to believe violations are reported merely for private vengeance or for pecuniary gain.

SPECIAL OFFENSES IN CONNECTION WITH HUNTING LICENSES.

In Illinois the alteration of a hunting license in any material manner, or the loan or transfer of it to another, is declared to be forgery and punishable as such. In Michigan, Tennessee, and a few other States procuring a license by false swearing is defined as perjury, and in some cases punished as such. In Maine and Vermont substantial fines are imposed upon anyone furnishing to another, or permitting another to use his license, and upon the person receiving such license. Altering or changing a license in any way is also made an offense.

The penalties sometimes attached to the offense of hunting without license are probably inadequate to restrain criminally inclined persons or those hunting for mercenary purposes. To meet this condition several States have declared that licensees who violate any provision of the game laws shall forfeit their licenses, and that the officer issuing them, or the State game warden, may revoke such licenses upon satisfactory proof of the unlawful conduct of the holder. Minnesota has prescribed the procedure in such cases as follows:

> SEC. 36. Any person who shall violate any of the provisions of this chapter [the complete game law], and who is at the time of such violation in the possession of a license duly issued to him, shall, upon conviction thereof, forfeit such license to the State of Minnesota, and such person shall deliver to the court before whom he was tried any such license, and the court shall forward the same to the commission. (Laws of 1905, ch. 344.)

In Maine the commissioners of inland fisheries and game may revoke the license of anyone who violates or countenances the violation of the game law after due notice to the holder and after opportunity is given him to show cause against such revocation.

The laws of most of the States require a licensee to produce his license on demand of a warden, and in several to any officer charged with the duty of enforcing the game law. Failure or refusal to do so is attended with a substantial penalty, and in Kansas and a few other States failure to produce a license on demand of a warden revokes it. Massachusetts and New Hampshire go a step further and require the licensee to produce and show his license to *any* person as often as requested, and on failure to do so he forfeits it. In West Virginia the licensee must produce and show his license, whenever required, to the owner of the land upon which he is hunting. Montana provides that if any officer believes that a license is in the hands of a person other than the one to whom it was issued he may require such person to identify himself, and in case of refusal he is held guilty of a misdemeanor.

DOGS.

In the last few years the practice of dogging deer, or 'hounding,' as it is commonly called, has been the subject of restrictive legislation in most of the States where big game occurs. Much has been written and more said for and against this method of hunting, but an examination of the laws plainly indicates a general trend toward the abolition of the practice, and to-day there are few States where one may hunt big game with dogs. The penalty is usually imposed upon the owner of the dog or person using it; but several States have not only done this, but have also authorized the destruction of the dogs by wardens, or, in a few instances, by any person. This subject has perhaps engaged more attention in Maine[a] than elsewhere. The attempt to suppress the practice of hounding in that State led to several serious tragedies, the most noted of which occurred in the fall of 1886, when two game wardens were shot and killed by a party of poachers who had a dog with them for the purpose of using it in hunting deer contrary to law. The wardens attempted to capture the dog and were killed while so doing. The principal actor in the affair escaped to California, where he was apprehended in March, 1887, and brought back to Maine, tried, convicted, and sentenced to imprisonment for life.[a] This sentence was afterwards commuted to twenty-five years and further reduced by good behavior to nineteen years, so that the term expired in 1906.

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[a] For résumé see F. P. Hardy, 'Six Years Under Maine Game Laws—VII, on 'Killing Dogs;' and IX, The Jock Darling Case, in 'Forest and Stream,' Vol. XXXVI, p. 372, May 28, 1891; p. 477, July 2, 1891.

Judging by legislative acts public sentiment has vacillated some what on this point. For some years prior to 1904 Vermont authorized the destruction of dogs used for hunting big game, but in that year repealed the provision, retaining, however, the prohibition of such hunting. So in New Hampshire, the destruction of dogs was authorized until 1905, but the legislature of that year repealed the provision. Wisconsin declares a dog used for pursuing deer a public nuisance, and thereby tacitly licenses its destruction. Michigan deals with the practice with a strong hand by declaring that any dog found pursuing, killing, or following upon the track of deer is a public nuisance, authorizing any person to destroy it summarily, and exonerating him from civil or criminal liability for so doing. Maine and Minnesota allow destruction of dogs under such circumstances by any person; and the conservative State of Massachusetts authorizes any of her officers who are required to enforce the game laws and all who may serve criminal process to kill any dog found chasing or hunting deer, if such hunting is known to the owner, and further provides that if the same dog is twice found hunting deer that fact shall be sufficient evidence of the owner's knowledge and consent.

Pennsylvania has gone into the subject with more detail than any other State. It declares that any dog pursuing or following upon the track of a deer is a public nuisance, and may be killed by any person upon affidavit of one or more persons before an authorized officer that the dog is in the habit of running deer or has been known to do so within a year. The law further declares that any dog pursuing any game animal or bird during the close season off land controlled by its owner is a public nuisance, and may be killed by the owner or lessee of the land whereon it is found, or by any game officer who sees it upon the track of such game, unless the dog wears a collar giving the name and address of the owner. Collared dogs so found hunting may be killed in the manner stated above after notice of the dog's proclivities, given to the owner by the landowner or by the secretary of the game commission. In January, 1906, the secretary estimated that about 300 dogs had been killed during the nine months' operation of the law.

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[a] For details of this tragedy see 'Forest and Stream,' Vol. XXVII, p. 308, Nov. 11, 1886; 'Maine Sportsman,' vol. 13, p. 158, April, 1906.

FERRETS.

The use of ferrets for hunting rabbits is of very ancient origin. History records their use for such purpose in the days of the Roman Empire. They were commonly used in this country till within the past few years, but recent legislation in several of the States has greatly restricted their employment.

In the Eastern States particularly, where rabbits are not sufficiently abundant to be a pest, they are often considered valuable game, and protected rigidly. The use of ferrets in hunting rabbits has imperiled the maintenance of the supply of these animals to such a degree that it has become necessary to prohibit the practice.

The usual prohibition simply extends to the use of the ferret for this special purpose, but Illinois and Massachusetts prohibit its use for hunting any game. Massachusetts further makes possession of a ferret in any place where game may be found prima facie evidence of its illegal use, and declares that ferrets used in violation of law shall be confiscated.

SPECIAL PROBLEMS.

COOPERATION.

It is axiomatic that the statutes of a State have no force outside its boundaries, and it is unusual that a State should declare the statutes of another State of force and effect within its domains. Such is the effect, however, of certain features of the laws of Michigan, Minnesota, Nebraska, Oklahoma, and Wisconsin. Minnesota provides that it shall be unlawful for any person to have in his possession or under control any game or birds or parts thereof which have been unlawfully taken or killed in another State or unlawfully shipped from such State. Wisconsin prohibits the shipment into or through the State of any game the shipment or transportation of which is prohibited by the laws of any other State, and makes it the duty of the officers of Wisconsin to seize such game. The Michigan statute is somewhat broader and is as follows:

> No person shall at any time have in possession or under control any bird, game, or fish caught, taken, or killed outside of this State, which was caught, taken, or killed at a time, in a manner or for a purpose forbidden by the laws of the State, Territory, or country where the same was caught, taken, or killed, or which was shipped out of said State, Territory, or country in violation of the laws thereof.

The statute of Oklahoma is much to the same effect, and Nebraska declares it unlawful for any person or corporation to bring into the State any game from any other State during the season when such State prohibits the export thereof. It would seem that similar action by all the States would be productive of much good.

'SOONERS.'

Close seasons will usually, if not invariably, be found to cover the period of reproduction of game and a sufficient time for the young to mature. These, indeed, are the chief purposes of such seasons, and upon their strict observance largely depends the maintenance of the game supply. Realization of this fact has led the game departments of several States to make unusual effort to prevent the killing of game in close season. The close season is generally respected until near its end, but a certain class of hunters, appropriately termed 'sooners,' often begin shooting a few days in advance of the legal opening of the hunting season. The temptation to be first in the field and to get the pick of the game is so strong that it is often necessary to enlist an extra force of deputy wardens to deal with this class. In

States authorizing the appointment of several deputies in each county this practice is easily controlled; but where no such authority is conferred it is more difficult to meet, especially because of the ingenious explanations given by 'sooners' to account for their presence in the field. If other game, such as squirrels or rabbits, may be lawfully shot at the time, the claim is made that such game is their sole object, and frequently they shoot in advance of the season under the guise of training dogs. Some States have prevented the use of the first plea by making the opening of the seasons as nearly uniform as possible,[a] or, as in Indiana, by establishing a close season upon less important game for a brief period prior to the opening of the season for the more important game. And in recent years the legislatures of several of the States have provided remedies for the subterfuge of training dogs, and altogether debarred the defense. Michigan permits the training of dogs fifteen days only before the open season for ruffed grouse, and prohibits the possession of firearms while the person is so engaged. Minnesota does not allow pointers and setters to be used or run in fields or upon lands in which game birds may be found during August, or at any time except in the open season for such birds. Pennsylvania permits dogs to be trained by their masters upon any game, except deer, from August 1 to January 1, but prescribes that no injury shall be inflicted upon such game. South Dakota has gone considerably further, and declares that any person traveling in any manner in any part of the State, outside the immediate bounds of the inhabited parts of any village, town, or city, in possession of any kind of shotgun and ammunition, with dogs ordinarily used for hunting game birds, from July 1 to September 1, shall be presumed to have violated the laws respecting game birds.

HUNTING ACCIDENTS.

The alarming increase in the number of fatal hunting accidents[b] in the past few years, due almost entirely to carelessness, has led to much discussion as to the best means of guarding against such occurrences in the future, and has resulted in the enactment of drastic statutes in Maine, Michigan, and Minnesota, where it is now a serious offense to shoot carelessly or negligently or to wound or kill a human being while hunting game. In both the former States the punishment is imprisonment not exceeding ten years or a fine not exceeding $1,000, and it is made the duty of county attorneys and sheriffs to investigate alleged violations of the acts and prosecute the offenders.

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[a] Montana has adopted a uniform open season for game of all kinds.

[b] In 1906 the number of such accidents in the United States exceeded 100. See Year Book U. S. Department of Agriculture 1906, pp. 536–537.

In Minnesota the killing of a human being by shooting with a gun or other firearm, when resulting from carelessness in mistaking the person shot for a deer or other animal, is manslaughter in the first degree and punishable as such. So far no conviction under these statutes has been reported.

On the other hand, in a North Carolina case (State *v.* Horton, 139 N. C.; 1 L. R. A., n. s., 991), decided in 1905, it was held that the unintentional and accidental killing of a human being was not rendered criminal by the fact that the slayer was at the time violating a statute prohibiting hunting on lands of another without permission.

COLD STORAGE.

One of the greatest obstacles to effective game-law enforcement is the modern cold-storage plant and the facility it offers for concealment of game. The ease and certainty with which dead game may be preserved even in hot weather removes all limitation formerly imposed by that condition and stimulates the killing of vastly larger quantities than in days before this invention. It is therefore a direct incentive to the unlimited destruction of game. It has furnished a defense often invoked in prosecutions for possession of game in close season, when the defendant has asserted that the game was lawfully taken in the open season and held in cold storage. It is often difficult, if not impossible, for the State to controvert this defense. Hotels, restaurants, and clubs are therefore able to serve game to their guests throughout the close season, and many other avenues of illicit commerce in game are thereby opened. It has proved such a menace to the preservation of game in Minnesota that in 1905 the legislature prohibited, in the following terms, the placing of game in any cold-storage plant:

> The placing or receiving within or storage of any game bird or game animal, or any part thereof, in any cold-storage plant, is hereby prohibited and made unlawful.

Other States have placed restrictions on the storing of game. As an example, Nebraska has made it unlawful to store game, except during the open season and five days thereafter, when stored for the person lawfully in possession thereof, and at any time when it has been lawfully imported into the State. This limitation is followed by a positive prohibition of the possession or serving of game by hotels, restaurants, cafes, and boarding houses to their patrons in close season. In Colorado a permit from the game commissioner is required to store game. In several States the owners, proprietors, or managers of cold-storage plants are required to permit the game wardens to inspect the plant upon demand. Kansas requires the fish and game warden to inspect all places where meat, fish, and game are kept for sale or shipment or stored for pay, and those storing such articles are required to permit inspection. New York defines the limitations on the privilege of storing game in no uncertain terms: Dealers in game may store their stock on hand at the commencement of the close season upon giving bond in such amount and under such restrictions as the forest, fish, and game commissioner may prescribe and with the further conditions that they will not sell, give away, or otherwise dispose of the game in close season, and that they will not violate the law in any way. The prostitution of the cold-storage plant to purposes of illicit traffic in game is fortunately disappearing under recent legislation and through the vigilance of the officers charged with the enforcement of the game laws.

The case of Haggerty *v.* St. Louis Ice Manufacturing and Storage Company (44 S. W., 1114), decided by the supreme court of Missouri in 1898, involved an interesting question of contract connected with the storage of game. Haggerty, a game dealer in St. Louis, had stored in 1892 with the defendant company a large quantity of game to be withdrawn during the next open season. In 1893, when the game was removed, the owner found it worthless from decay. A suit was instituted for the recovery of $7,000 damages from the storage company. The company demurred to the complaint upon the ground that the contract of storage was in violation of the game law, which prohibited possession of game in close season. The demurrer was sustained and on appeal to the supreme court the judgment was affirmed.

INDIANS.

Years ago exceptions in favor of Indians were occasionally made in the game laws of some States, as in those of Maine and California. In 1853 Maine exempted Indians of the Penobscot and Passamaquoddy tribes from the restrictions of the law protecting deer and moose. In 1854 California exempted Indians from the operation of the salmon law, and in 1866 allowed them the privilege of taking trout at any time. Later on, however, these exceptions disappeared, and outside of their reservations Indians were placed on the same basis as other persons. In 1892 the supreme judicial court of Maine, in the case of State *v.* Newell (24 Atl., 943), decided that Indians in that State were not 'Indian tribes' within the treaty-making power of the Federal Government, that they had no separate political organization and were subject as individuals to all the laws of the State. Similarly the Supreme Court of the United States has held that the Cherokee Indians who remained in North Carolina were subject to the laws of that State (Cherokee Trust Funds, 117 U. S., 288).

The game laws of Arizona, Colorado, Montana, and North Dakota seem to be the only ones that now specially mention the Indian. The law of Montana declares that the provisions and penalties prescribed 'shall be deemed and held to include all Indians and half-breed Indians when outside the Indian reservation.' (See p. 198.) Montana also has a statute prohibiting Indians from carrying firearms of any kind outside a reservation, and authorizing the seizure and confiscation of such arms. Colorado mentions the Indian only in connection with other persons affected by the law, so that in this State his relations to the game law do not differ from that of others. Arizona provides:

> Any Indian who, in the Territory of Arizona, at any time, shall hunt, take, pursue, kill, or destroy any game or fish mentioned in this act, off the Government reservation to which he belongs, shall be guilty of a misdemeanor. (Laws of 1905, ch. 25, sec. 22).

The game law of North Dakota deals with this subject more at length, and is a clear exposition of the status of Indians in this country. Under this law it is illegal for an Indian who is a ward of the Federal Government to hunt anywhere in the State, except upon Indian reservations, unless he takes out a regular hunting license. The section is as follows:

> SEC. 7683f. *Indians subject to game laws.*—It shall be unlawful for any Indian who is a ward of the United States Government to hunt on any lands within this State at any time, except upon such lands as are known to be Indian reservation lands. It shall be the duty of the district game wardens, their deputies, and all peace officers of this State, to arrest any Indian found hunting in violation of this act. It shall be the duty of the States attorney in any county within this State to prosecute any Indian so arrested under the provisions of this chapter, and, upon conviction, such Indian shall be deemed guilty of a misdemeanor and be punishable by a fine of not less than twenty dollars nor more than fifty dollars, or may be imprisoned in the county jail not less than ten days nor more than thirty days, or may be subject to both such fine and imprisonment; provided, that the provisions of this section shall not apply to any Indian who takes out a permit to hunt as provided for other persons.

The peculiar character of Indian reservations, in view of the relation of the land to the State or Territory in which situated and of the Indian to the General Government, makes it important that the question of jurisdiction in cases of violation of the game and fish laws on Indian reservations or by reservation Indians shall be clearly stated.

On March 3, 1885, Congress passed an act relating to Indian reservations defining certain acts as crimes and giving jurisdiction of offenses under the act to the Federal Government. (23 Stat., 385). The list of crimes included nothing relating to game as such. Since this act was passed several questions have been raised and the decisions of the higher courts have made its interpretation so clear that its construction is easy. The United States Supreme Court in United States *v.* Kagama (118 U. S., 375) decided that Congress had jurisdiction to pass the act and the right to give jurisdiction to the Federal courts. Justice Miller in announcing the decision of the court says:

> These Indian tribes are the wards of the nation. They are communities dependent on the United States; dependent largely for their daily food; dependent for their political rights. They owe no allegiance to the States, and receive from them no protection. * * * From their very weakness and helplessness, so largely due to

> the course of dealing of the Federal Government with them, and the treaties in which it has been promised, there arises the duty of protection, and with it the power. This has always been recognized by the Executive and by Congress, and by this court, whenever the question has arisen. The power of the General Government over these remnants of a race once powerful, now weak and diminished in numbers, is necessary to their protection, as well as to the safety of those among whom they dwell. It must exist in that Government because it never has existed anywhere else, because the theater of its exercise is within the geographical limits of the United States, because it has never been denied, and because it alone can enforce its laws on all the tribes.

The statement at the outset of this quotation that the "Indian tribes are the wards of the nation" is the keynote to the question of jurisdiction. In State *v.* Campbell (53 Minn., 354) the court said:

> The jurisdiction of the Federal Government over these Indian tribes rests, not upon the ownership of and sovereignty over the country in which they reside, but upon the fact that, as the wards of the General Government, they are the subjects of Federal authority within the States as well as within the Territories.

In general it may be said that while the State laws extend over and may be enforced upon Indian reservations when violated by white people or nontribal Indians, yet State authorities have no power to enforce the laws upon the tribal Indian on his reservation. The U. S. district court of Wisconsin has said, 'Congress having assumed jurisdiction to punish for criminal offenses, that jurisdiction is exclusive.'[a] It adds that while Congress might provide fish and game laws for Indians, it has not done so, and adds that it would be intolerable if the State should have power to step in and extend its civil and criminal codes and police power over these people.[b] Covering this same point, the Minnesota supreme court, in deciding the case of State *v.* Campbell, said:

> By the act of 1885 presumably Congress has enumerated all the acts which, in their judgment, ought to be made crimes when committed by Indians, in view of their imperfect civilization. For the State to be allowed to supplement this by making every act a crime on their part which would be such if committed by a member of our more highly civilized society would be not only inappropriate, but also practically to arrogate the guardianship over those Indians, which is exclusively vested in the General Government.

The jurisdiction of the United States over the Indians on a reservation remains, even though the lands have been allotted in severalty, the title of the reservation still remaining in the United States.[c]

In 1899 the board of game and fish commissioners of Minnesota brought an action of replevin for the meat of 14 deer found in possession of an Indian on the White Earth Reservation after the expiration of the time during which the State law permitted the possession of venison. It was claimed that the deer were killed on the reservation by tribal Indians during the open season and bought by one of the Indians, Julia Selkirk, who held them to sell to Indians on the reservation, no part of the meat having been removed or having been intended to be removed from the reservation. The supreme court of Minnesota decided that the relationship of Indians to the Federal Government and certain special circumstances connected with the White Earth Reservation gave the Indians the right to hold and deal among themselves in deer meat on the reservation at a time when the possession and sale of such meat were prohibited by the State law. The court was not unanimous, however. Two of the five justices, including the chief justice, dissented from this opinion, holding that the State had the right to reclaim its own property. They said:

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[a] In re Blackbird, 109 Fed., 139.

[b] In re Blackbird, supra.

[c] In re Lincoln, 129 Fed., 247 (Calif., 1904).

> In view of the fact that tribal Indians who have not adopted the habits of civilized life are accustomed to depend largely on the fruits of the chase for their food, it may be necessary that they should be allowed to kill game for that purpose on their reservations all the year, irrespective of the closed season, under State laws. But there is no necessity that they should be allowed to kill it for the purpose of sale to others.

And further:

> It may be that the remedies of the State for the enforcement of these laws are incomplete, so far as the persons of the Indians are concerned; but, if so, it is not because the laws do not apply to Indians, but because of the exclusive guardianship of the Federal Government over tribal Indians on a reservation.[a]

While the exemption of tribal Indians on reservations from the State laws protecting fish and game seems thus to be generally maintained, on the other hand, the jurisdiction of the State authorities over Indians committing offenses off their reservations and nontribal Indians anywhere seems to be no less strongly upheld. In 1898 the supreme court of Minnesota maintained the right of State game officials to seize in transit game that had been killed on the White Earth Reservation by Indians during the open season and sold to an Indian on the reservation, who undertook to ship it out of the State. The court stated, in deciding this case:

> It is unnecessary to and we do not decide whether the State may or may not interfere with game which is unlawfully in the possession of Indians on the reservation. But we do hold that when, as in this case, game is once off this reservation, and in the possession of any person or corporation in violation of the law, it may be seized and confiscated by its proper officers, without reference to where or by whom it was killed.[b]

The well-known case of Ward *v.* Race Horse (70 Fed., 598; 163 U. S., 504)[c] was decided along this same line. Race Horse, a member of the Bannock tribe of Indians residing on the Fort Hall Indian Reservation in Idaho, killed 7 elk in October, 1895, on unoccupied lands of the United States in Uinta County, Wyo., about 20 miles southeast of Mount Hoback, and about 100 miles from the reservation, contrary to the provisions of the laws of Wyoming. He was arrested and imprisoned by John H. Ward, sheriff of Uinta County. The United States attorney for that district secured a writ of habeas corpus in behalf of Race Horse from the circuit court of the United States for the district. The contention was made that as the United States had in 1868 made a treaty with the Bannock Indians, to which tribe Race Horse belonged, guaranteeing them the right to hunt upon the unoccupied lands of the United States "so long as game may be found thereon and so long as peace subsists among the whites and Indians on the borders of the hunting districts," the game law of Wyoming, in so far as it undertook to punish a member of this tribe, was void, because in contravention of the treaty, and that, therefore, the arrest and detention of Race Horse were unwarranted. The circuit court upheld this contention and discharged Race Horse. The case was appealed by Ward, the sheriff, to the Supreme Court of the United States, which held, in a decision rendered in May, 1896, that the treaty made by the United States with the Bannock Indians did not give them the right to hunt within the limits of the State of Wyoming in violation of its laws after the admission of Wyoming as a State into the Union. In the act creating the Territory of Wyoming the rights of the Indians under treaty had been expressly reserved, but not so in the act enabling Wyoming to come into the Union as a State, and the court held that the obligations of the treaty were annulled by the admission of the State into the Union.

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[a] State *v.* Cooney (Selkirk intervening) 80 N. W., 696 (Minn., 1899).

[b] Selkirk *v.* Stevens, 75 N. W., 386 (Minn., 1898).

[c] See also account of this case by Hon. W. A. Richards, governor of Wyoming, in Recreation, Vol. 12, pp. 443–447, 1900.

In this case the Supreme Court virtually decided that in the absence of a treaty to that effect an Indian hunting off his reservation is subject to the State laws, even though hunting on unoccupied lands of the United States. Although the point was not directly raised and formed no part of the question involved in the decision, yet enough was said by the court to set at rest the contention sometimes urged that the game law of a State is not operative upon unoccupied lands of the United States within that State, and the decision is authority against such a contention.

From the foregoing considerations it may be said that generally speaking the State has no jurisdiction in the case of a disregard of its game laws by a tribal Indian on his reservation, but that it has jurisdiction when its game laws are violated by an Indian off his reservation, or by any person other than an Indian on an Indian reservation. In view, however, of the peculiar relations of the Federal Government to the Indians, and the many treaties and acts of Congress in force, whenever it is sought to enforce the game laws on Indian reservations the exact status of the reservation in question should be ascertained.

Although the legal status of the Indian on or off the reservation has thus been materially elucidated by recent decisions of the courts, and State officers have been given authority to call sheriffs and peace officers to their assistance and to raise a posse when necessary, the practical difficulty of controlling Indians in some of the Western States still continues. When, as sometimes happens, bands of Indians leave their reservations on hunting trips into adjoining counties or States, the warden service is practically powerless to prevent their depredations and frequently it becomes necessary to call out troops to return the Indians to their reservations. During the past ten years Indian depredations have been most frequent in Colorado, Minnesota, New Mexico, and Wyoming. In order to show the character of these depredations, mention may be made of some of the more important recent raids.

Reference has already been made to the raid which occurred in Colorado in Rio Blanco County in 1902. (See p. 50.) Another notable incursion of the same kind was that of the White River Utes, who invaded the western part of Routt County, Colo., on Little Snake River, in October, 1897. According to the report of the commission which was appointed to investigate this affair, nearly 200 Indians had left their reservation for a hunting trip in Colorado. At one point, where 27 Indians were encamped, 40 or 50 fresh deer hides and 2 fresh carcasses of deer were found by a party of 10 wardens and 2 unarmed citizens. The wardens endeavored unsuccessfully to induce the Indians to submit to arrest or to leave the State. In the conflict which followed two Indians were killed and a squaw was wounded.[a]

In Minnesota complications arose about 1897 or 1898 through Indians leaving their reservation and killing deer after the close of the season for sale to Indian traders.[b]

In Montana in 1899 Crees and half-breeds from Canada engaged in the wholesale slaughter of deer along the Missouri River. These Indians have no reservation, and wander over the country gaining a living as best they can, and destroy large quantities of game. More than once they have been rounded up by troops, taken to the border, and formally expelled from the United States, only to drift back across the line in a short time. They kill at any time of the year and use dogs to run game, in violation of law.[c]

In New Mexico in 1905 a number of Indians from Isleta made a hunting trip to the Datil Mountains, in the western part of Socorro County. This incursion not only threatened the existence of the deer and antelope in that region, but, it was feared, would bring on serious trouble with the settlers.

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[a] D. C. Beaman in Forest and Stream, L, p. 27, Jan. 8, 1898.

[b] S. F. Fullerton in Forest and Stream, LI, p. 509, Dec. 24, 1898.

[c] Forest and Stream, LIII, p. 501, Dec. 23, 1899; LV, p. 421, Dec. 1, 1900.

In Wyoming depredations by Indians occurred in Natrona County in 1894 and in Uinta County in 1895. The latter raid, made by a band of Bannocks from the Fort Hall Reservation, was quelled by the troops and ultimately resulted in the celebrated case of Ward *v.* Race Horse, which was carried up to the Supreme Court in 1896, and to which reference has already been made. (See p. 94). One of the most serious raids which has occurred in the State took place as late as 1906 and required the calling out of troops before the Indians could be controlled.

Regarding this raid the State warden says:

> About the most exasperating occurrence of the year connected with our game interests was the invasion of our State by bands of Indians from Colorado or Utah—exasperating because we were utterly powerless to prevent their lawless acts or to have them punished. These Indians (Utes or Piutes) were in such strength that all the wardens and peace officers of the State (if they could have acted in concert) would have been absolutely unable to control them. Indeed, I am positively certain that the total militia strength of the State could not have arrested these Indians, and any attempt by an inferior force would have resulted in a conflict and consequent bloodshed.
>
> From the time they entered the State until they were removed, these Indians violated our game laws with impunity, killing every live wild thing that came their way. Hundreds of sage hens, scores of antelope, and many deer were slaughtered. The Indians were well armed and apparently fully conscious of their ability to laugh at local officers. At a personal conference with the governor in August concerning the acts of these Indians, I was advised not to act in such manner as to precipitate a conflict that might result in the loss of scores of lives.
>
> From information furnished by reputable ranchmen of the Whisky Gap section it appears that two bands of Indians passed through that country; the first, about 500 in number, claimed to be Utes; the second, almost as numerous, called themselves "Piutes," both bands giving White Rock Reservation as their starting place.
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> Special Assistant Warden Guy Signor, of Hailey, who made personal investigation, reports as follows: "On or about July 20 about 500 Indians (Utes) came to Harper's ranch. They camped on Whisky Creek for five days, using Harper's fence posts for fuel. From this camp about 50 Indians made a circuit of the surrounding country as far as Ferris Mountains, Sweetwater, and Sharp's ranch, rounding up about fifty antelope. * * *
>
> "About the 4th of August another band of 52 tepees, claiming to be 'Piutes' passed through that country. These Indians (the Piutes) were also painted and were armed with modern smokeless rifles." * * *
>
> Leaving the Whisky Gap and Splitrock country these Indians went, by way of Douglas, through Converse, Weston, and Crook counties, stripping the country of wild game wherever they traveled. In the latter part of August, Special Assistant David O. Johnson, of Newcastle, complained to me that the Indians were killing antelope by the score in the Pumpkin Butte section, and that he was powerless to deal with the situation, suggesting that I appeal to the governor. Being without funds at that time, any attempt by this office to call out a posse (under section 2101, Game Laws) strong enough to arrest the Indians would have been utterly farcical. Every pioneer in the West knows by experience that a mere show of authority has no effect upon a band of armed Indians, except to call forth contemptuous insult. Numbers and equipment must be sufficient to overawe them, or a conflict is the inevitable result. * * *

> Fortunately the governor's requisition for Federal troops resulted in ridding the State of these Indians, who not only slaughtered our wild game but were a very serious menace to the lives and property of our citizens. (Ann. Rept. State Game Warden, Wyoming, 1906, pp. 17–19.)

ALIENS.

In concluding this discussion of game law enforcement it seems desirable to call attention to a problem which already has assumed alarming proportions.

In the last few years our game laws have been defied by a certain lawless element of unnaturalized foreigners who, in some of the more northern States, persistently and willfully violate them by hunting in close season, and especially by killing nongame birds, which are protected at all times. These people appear to assume that the United States is a country where unrestrained license should exist, if it does not, and defy officers of the law and disregard the rights of property. They roam the woods and fields with guns, paying no attention whatever to signs forbidding trespass, and frequently either insult or assault landowners who protest against their illegal acts. As several usually hunt together, and are ready to assist each other to the last extremity, the warden who undertakes to execute the laws often finds the task difficult and even hazardous. In several instances wardens and constables have been fatally shot or stabbed when attempting an arrest. Four wardens were killed and several others seriously injured by aliens in Pennsylvania during 1906. Railroads in certain sections of the country employ foreigners as laborers on their roadbeds, and camps are established along the right of way. On off days, especially Sundays, these laborers scour the surrounding country in pursuit of any and all kinds of birds. Fines assessed against them are paid with remarkable readiness, even when the amount is large, for the reason that several form a pool, and out of the sum thus obtained pay any fine imposed upon one of their number.

One of the most important cases of this kind occurred recently in Iowa, where 113 Italian laborers were arrested July 11, 1907, near Rock Rapids, charged with violating the game law. Eighteen of them plead guilty, and the total fines exceeded $500. The details were as follows:

> Deputy Game Wardens A. M. Green and H. H. Yordy, with Sheriff Wheatly and 20 special deputy sheriffs, reached Rock Rapids on the Great Northern at 1 o'clock this morning [July 12] with 113 Italian laborers, together with 18 shotguns, traps, dead game, and other evidences of hunting.
>
> All of the defendants were arraigned in Justice George Monloux's court at 9 o'clock, and agreed to deliver up the ones guilty of violating the game law if the officers would withdraw the charges against those they claimed were innocent. Eighteen were then accused by their fellow-prisoners and pleaded guilty to 25 counts, and were assessed a fine of $29.60 each. This they paid and were discharged.[a]

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[a] Am. Field, LXVIII, p. 51, July 20, 1907.

Various measures have been taken to meet the alien problem. Some States have printed their game laws in foreign languages and posted them in conspicuous places. Others have instructed their wardens to explain them to foreigners. The game commissions of several States have recommended drastic legislation. New York now prohibits the possession or carrying of firearms by aliens in any public place. Alabama, Florida, Louisiana, Maine, Pennsylvania, South Carolina, Texas, Utah, and Wyoming require aliens, or unnaturalized foreign-born residents, to pay the same fee for a hunting license that is exacted of a nonresident. Massachusetts has established a special fee of $15 for unnaturalized foreign-born residents who desire to hunt, while nonresident aliens are excluded from the privilege altogether; Connecticut requires an alien license of $15, while the fee for the ordinary nonresident license is only $10; California an alien license of $25 and nonresident license of $10. Washington requires an alien to pay $50. The problem is so recent that it is perhaps too soon to look for its final solution, but doubtless the earnest efforts being made to solve it will show definite results before long, and such lawless practices will be checked, if not entirely suppressed.

PART II.—SUMMARIES OF THE PROVISIONS RELATING TO ENFORCEMENT.

The second part of this bulletin is an epitome of the more important provisions of the game laws relating to enforcement. Except in a few cases, the subject-matter is grouped under four main headings: (1) Officials, (2) other officers, (3) game protection fund, and (4) administrative provisions, each of these headings being given the same number under each State to facilitate comparison. Miscellaneous and special provisions are incorporated under, or interpolated between, the main paragraphs. Effort has been made to condense statements into the briefest possible form, but the full text of the law containing the provisions can readily be consulted on referring to Part III.

ALABAMA.

(1) **Officers:** State game and fish commissioner; office established February 19, 1907; term, four years; bond, $5,000; salary, $2,500 per annum; office clerk allowed at compensation of $2 per day while actually employed.

Duties and powers.—To publish and distribute the game and fish laws in pamphlet form; to make a quadrennial report of the operations of his office to the governor; to enforce the game, bird, and fish laws; to issue permits for capture and transportation of birds for scientific and propagating purposes; to seize game and birds illegally taken, killed, possessed, or shipped; vested with power of sheriffs and constables to serve criminal process.

County game and fish warden.—One for each county, appointed by commissioner; term, four years; bond, $500; compensation, one-half fines collected in his county for infractions of game and fish laws; fees of a constable for similar services and $3 per day when acting upon special instructions; vested with same power as commissioner in enforcing game laws.

(2) **Other officers:** Sheriffs, deputy sheriffs, marshals, constables, and other peace officers are ex officio game and fish wardens.

(3) **Game protection fund:** All hunting, scientific collecting, and propagating license fees, and one-half fines, penalties, and forfeitures arising under the game laws constitute the State game fund.

(4) **Administrative provisions:** Possession of artificial light while hunting is prima facie evidence of its use to hunt deer; violation as to each animal or bird is a separate offense, and two or more offenses may be charged in the same indictment, complaint, or affidavit; violation as to any number of animals or birds of the same kind may be charged in the same count and punished as a separate offense as to each, and proof as to part of a bird or animal is sufficient to sustain charge as to whole. Corporations may be arrested and constructively brought into court by reading the warrant to the president, secretary, or manager in the State, or any agent thereof in any county where action or indictment is pending; any fine imposed upon a corporation may be collected by execution against its property. Licensees are required to

carry their licenses with them; a false statement in procuring a license or alteration thereof is punishable by fine of $10 to $25. Circuit judges and judges with concurrent jurisdiction must give the game laws in charge to the grand juries and urge strict inquiry into infractions thereof.

Prosecution must be begun within 60 days before a justice of the peace, or within one year when jurisdiction is in city, county, or circuit courts.

ALASKA.

(1) **Officers:** Marshals, deputy marshals, collectors and deputy collectors of customs, and officers of revenue cutters required to assist in enforcing the game laws; marshals and deputy marshals may arrest, without warrant, persons found violating law and may seize without warrant game, traps, nets, guns, boats, or other paraphernalia used in violation of law; collectors and deputy collectors of customs or any person appointed in writing by a marshal may seize, without warrant, said property and deliver it to a marshal.

Prosecution must be begun within three years.

ARIZONA.

(1) **Officers:** Fish and game commissioners; commission established 1887; composed of three members, one to serve as business agent; term, two years; no salary.

Duties and powers.—To report annually to the governor, with recommendations for legislative action; to enforce the laws; to provide for distribution and protection of imported game and native birds; to post private grounds upon consent of the owners; to issue hunting licenses. Authorized to appoint, without expense to the Territory, assistants, who shall be vested with the powers of sheriffs to make arrests.

(2) **Other officers:** Peace officers required, under penalty ($25), to arrest violators of the game law and to take them before any judicial officer competent to try the offense.

(3) **Game protection fund:** Nonresident license fees and fines for trespassing on posted lands to be paid to commissioners and used for enforcement of game laws.

(4) **Administrative provisions:** Possession of game without evidence of lawful taking prima facie evidence of trapping or snaring in violation of law; one-half of fines to be paid to person furnishing evidence, the other half to school fund. Commissioners and deputies have power to arrest, without warrant, any person in the act of violating the law.

Prosecution must be begun within two years.

ARKANSAS.

(1) **Officers:** Sheriffs and constables are ex officio game wardens, and deputy sheriffs deputy game wardens. They are required, under penalty, to make arrests and prosecute violations of the game laws, and need not give bond for costs.

(4) **Administrative provisions:** Justice of the peace, upon information of violation of law, required to issue warrant directed to any peace officer commanding him to arrest the offender, who shall be tried at once. Officer failing to serve warrant guilty of nonfeasance in office, and upon conviction liable to fine of not less than $50 or more than $100 and forfeiture of office. Whole fine for violation of game laws paid to officer making arrest and securing conviction.

Prosecution must be begun within one year.

CALIFORNIA.

(1) **Officers:** Board of fish commissioners; established April 2, 1870; jurisdiction extended to game in 1878; members serve during pleasure of governor; no compensation.

Duties.—To supervise enforcement of laws for the protection of fish and game; to provide for distribution and protection of game birds imported for propagation; to report biennially to governor.

Assistants.—Board may appoint necessary assistants, one of whom shall be chief deputy and receive such salary as may be fixed by board. Assistants vested with powers of sheriffs and authorized to make arrests anywhere in State.

County fish and game wardens, one for each county, appointed by county boards of supervisors; term two years; bond fixed by board; salary, $50 to $125 per month, according to population of county; allowance for expenses, $25 per month, both paid from county treasury. County wardens required to enforce game laws and county ordinances and vested with all the powers of peace officers to make arrests for violations.

(3) **Game protection fund:** Hunting license fees and fines for violation of game laws constitute a fund in State treasury to be used for payment of expenses of prosecutions and for protecting, restoring, and introducing game.

(4) **Evidence:** Proof of possession of birds or animals which show no evidence of capture otherwise than by net, trap, or similar device is prima facie evidence of illegal taking or killing by holder; licensee refusing to exhibit his license to any officer authorized to enforce game laws or any peace officer is guilty of misdemeanor.

Prosecution for felony (killing elk) must be begun within three years; for a misdemeanor, one year.

COLORADO.

(1) **Officers:** State game and fish commissioner; office originally established in 1891, reorganized in 1899; term, two years; bond, $5,000; salary, $1,800 per annum with allowance for necessary traveling expenses not to exceed $600, and clerk at salary of $1,000 per annum.

Duties and powers.—To publish the game and fish laws and regulations biennially for general distribution, at an expense not to exceed $300; to prescribe rules and regulations necessary to carry out the purpose of the law and to prepare the forms necessary for such purpose; to cause prosecutions to be instituted and conducted. The commissioner has the powers of sheriffs and constables throughout the State, and when necessary may call to his aid the sheriff of any county, with his posse, or may himself summon such posse without intervention of sheriff; he may bring civil action for damages or for possession of game illegally captured or in possession, and may procure writ of replevin without bond; with permission of governor he may take any game for purposes of propagation elsewhere in State; he must issue nonresident licenses, and may issue resident licenses and permits to collect for scientific purposes in certain cases; may issue duplicates of lost permits, licenses, and certificates; must report biennially to governor the transactions of his department and submit necessary recommendations; report to be published at a cost not exceeding $200.

Deputy State game and fish commissioner, appointed by commissioner, salary $1,500 per annum and allowance for necessary traveling expenses not to exceed $400.

Chief game wardens, five in number, appointed by commissioner; bond, $1,000; salary, $900 per annum and allowance for necessary traveling expenses not to exceed $300; must devote entire time to duties of office; have same power as commissioner to summon posse.

Deputy game wardens, not more than ten at any one time, appointed by commissioner with approval of governor, for a limited time; bond, $1,000; compensation not exceeding $100 per month during actual employment.

Special game wardens appointed by commissioner; have powers of deputy wardens; bond, $1,000; receive no salary but are entitled to certain fees.

Guides licensed by State fish and game commissioner have powers of deputy warden.

Commissioner and all wardens have jurisdiction throughout State, with powers of sheriff or constable; may seize game taken or held illegally; may arrest, with or without warrant, any person believed to be guilty of violating the law, and with or without warrant may open, enter, and examine any place or package (dwelling house only under warrant) where they have reason to believe game illegally taken or held is to be found, and may seize such game; in case of seizure of game in transit they have authority, upon payment of reasonable compensation, to take possession of and use any animal or vehicle employed for such transportation (except such as are used as public conveyances of passengers or mail) for conveying game or prisoner; they are required to arrest any person hunting without license when one is required, and may demand of anyone they believe to have hunted within the year the production of and opportunity to copy his license; the commissioner, or any warden if directed by him, may bring against any person unlawfully wounding, killing, or possessing any game animal or bird a civil action in the name of the State for recovery of the value of such animal or bird according to schedule of minimum values prescribed in game act.

(2) **Other officers:** Sheriffs and constables required to enforce game laws; have same special powers to arrest, search, and seize as are conferred on deputy game wardens; have authority to demand production of hunting license, and to bring civil action for recovery of value of game illegally killed, wounded, or possessed; and are entitled to same fees and perquisites as wardens. District attorneys are required to prosecute violations coming to their knowledge (when requested by commissioner or other officer, such prosecutions to be under supervision of commissioner). United States forest officers are vested by the State with all powers of deputy wardens.

(3) **Game protection fund:** All fees for licenses and permits issued by the commissioner; entire proceeds from sale of confiscated game if seized by commissioner or warden and one-half if by sheriff or constable; one-half fees for resident licenses issued by county clerks; one-third of all fines and of amounts recovered in civil actions for unlawful capture or possession of game; and all moneys coming into the hands of the commissioner not otherwise disposed of to constitute a State game protection fund. This fund to be used in payment of salaries and expenses of enforcing the law; if fund is insufficient the deficit must be paid from the general State fund.

(4) **Administrative provisions:** Prosecutions may be commenced by indictment, information, or complaint, and district and county courts and justices of the peace have concurrent and original jurisdiction of all offenses against game laws except those relating to buffalo or the use of dynamite, explosives, or poisonous or stupefying substances in killing fish. Justices of the peace and clerks of courts required to report results of all cases in their courts to commissioner within twenty days after determination thereof. Person instituting prosecution or suit entitled to one-third the fine or recovery. Actions for damages and for possession of game unlawfully wounded, killed, or possessed may be joined; civil action does not bar criminal prosecution or lawful seizure of game. Fines, penalties, and judgments can not be reduced, remitted, or suspended except as expressly provided by law. Warrant of arrest may be served on corporations by reading to president, secretary, or manager in the State or any general or local agent in county where action is pending, and thereafter the corporation is deemed in court and subject to its jurisdiction, and any fine imposed may be collected by execution against its property. Violation as to each animal or bird is a separate offense and two or more offenses may be charged in same complaint, indictment, or information, and violations to any number of same kind may be charged in same count and punished as separate offenses; proof as to part of an animal or bird shall be sufficient to sustain charge as to whole.

Perquisites.—Commissioner, wardens, and other officers instituting prosecution entitled to one-third of the fines and one-third of any sum recovered in a civil suit instituted by them on account of game illegally wounded, killed, or possessed; when arrests are made by commissioner or wardens they are entitled, in case of conviction, to the fees of constables in cases of misdemeanor, but such fees are paid only when collected from defendant. Officer seizing and selling game is entitled to mileage and $3 per day for time consumed, to be paid from proceeds of sale.

Evidence.—Possession of game unaccompanied by proper license, permit, invoice, or certificate prima facie evidence of unlawful taking and possession, and person in possession of game shall produce such license, permit, invoice, or certificate upon demand of any officer and permit him to copy it; naming game upon menu as food for patrons of any hotel, restaurant, cafe, or boarding house prima facie evidence of possession of same by proprietor; possession of game in the field prima facie evidence that possessor has hunted said game within the year. The pamphlet of game laws, rules, and regulations issued by the commissioner shall be accepted as prima facie evidence of the existence of such law, rules, and regulations in every court in the State. When requested by officer instituting prosecution any participant in violation of the law may testify against any other person charged, and his evidence shall not be used against him in any prosecution.

Attempts to violate the law are punishable to same extent as actual violations; accessories are punishable as principals; persons fined shall be imprisoned until fines and costs are paid or until they have served one day for each $5 thereof. Confiscated game shall be sold unless cost of sale would exceed the proceeds, in which case it shall be donated to some needy person.

Prosecution for felony must be begun within three years; for misdemeanor and civil action for recovery of fine, one year and six months.

CONNECTICUT.

(1) **Officers:** Commission of fisheries and game; established as commission on fisheries 1867, present commission established April 30, 1895; composed of three members; term two years; compensation of commissioners, $3 a day while actually serving, expenses; $200 per annum for the commission for clerical aid.

Duties and powers.—To introduce, propagate, and distribute food fish and game, and enforce game laws. May authorize county fish and game warden to investigate violations of game laws in his county, expenses of such investigation not to exceed $15, payable from State treasury. Each commissioner vested with powers of a grand juror or prosecuting officer for prosecuting violations; commission required to report to governor biennially.,

County fish and game wardens.—One for each county, appointed by the commissioners for two years; may deputize any person to assist in detection and arrest of offenders.

Special fish and game protectors.—Not less than 10 nor more than 20 for each county, appointed by county warden, holding office at his pleasure; have powers of other officers to arrest.

Wardens, their deputies, and protectors must take oath of office; may search without warrant any place or receptacle supposed to be used for keeping or conveying game illegally taken or possessed; may arrest without warrant any person violating the game laws; entitled to fee of $20 to be taxed against defendant, as costs, in case of every conviction where arrest is made by them.

Owner or occupant of land may arrest any person hunting, fishing, or trespassing thereon.

(3) **Game protection fund:** All money received from resident, nonresident, and alien hunting licenses to be paid into the State treasury and set apart for the protection and propagation of game.

(4) **Administrative provisions:** Reception of game for shipment in unmarked package or addressed to a point out of the State prima facie evidence that same was killed for purpose of exporting; possession of gun or trap in any State game preserve

presumptive evidence of violation of law; the taking of each rabbit with a ferret a separate offense; one-half the fine for trespass upon a State game preserve paid to informer. Justices of the peace have jurisdiction of game cases where fine does not exceed $100 or imprisonment 30 days.

Prosecution must be begun within one year.

DELAWARE.

(1) **Officers:** Delaware Game Protective Association, incorporated by public act in 1879 for twenty years, charter extended in 1899; has authority to promulgate regulations for protection and preservation of game.

Every member authorized to arrest without warrant any person found violating game laws and to bring such persons before a magistrate for trial.

(3) **Game protection fund:** Nonresident license fees used to pay expenses of association and for stocking State with fish and game. Fines and shipping license fees paid to association for use in enforcing law. Fines for violation of nongame-bird law paid to Delaware Audubon Society.

(4) **Administrative provisions:** Affidavit of violation of law is ground for issue of warrant of arrest directed to a sheriff or constable; proof of probable cause for believing that game taken or held contrary to law has been concealed is ground for issue of warrant to search any place and to break open any compartment, chest, box, locker, crate, or basket; possession of wild fowl, together with a punt or swivel gun or, while possessor is on the water at night with artificial light, prima facie evidence of violation of law; failure to pay fine for hunting upon land of another without permission renders offender liable to forfeit his gun, which may be sold at the expiration of 30 days and proceeds applied to payment of fine, the balance, if any, to be returned to owner. Such fines are paid into State treasury. Justices of the peace have plenary jurisdiction of offenses against the game laws.

Prosecution must be begun within two years.

DISTRICT OF COLUMBIA.

(1) **Officers:** Superintendent of Metropolitan police acts as game warden. No salary as such.

(2) **Game protection fund:** Annual appropriation, $500.

(3) **Other officers:** Health officers are empowered to enforce the game laws.

(4) **Administrative provisions:** Any of the above officers may search any house, boat, market, box, cold storage, or other place, upon sworn information that game is concealed in violation of law; officer or any other person securing conviction entitled to one-half of fine.

FLORIDA.

(1) **Officers:** One fish and game warden for each county;[a] recommended by county commissioners upon petition of seventy-five freeholders, and appointed by governor; term, two years; bond, $500; salary not to exceed $60 a month, payable from county treasury; also entitled to one-half fine when they make affidavit or furnish evidence on which conviction is based.

Duties and powers.—To supervise enforcement of game and fish laws in their counties and to make complaint against offenders; have power to arrest, take before a magistrate, and subject to trial any person violating the game laws.

Deputies.—As many as necessary, appointed by county warden.

(2) **Other Officers:** In counties having no warden the sheriff is required to perform the duties; sheriffs enforce game laws as they do other criminal statutes.

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[a] For laws permitting additional wardens in Hernando, Hillsborough, Lafayette, and Polk counties see p. 157.

(3) **Game protection fund**: Fees from nonresident hunting licenses constitute a fund in county treasury for use of commissioners in paying salary of warden.

(4) **Administrative provisions**: Magistrate before whom offender is brought may order seizure of implements used in violating game law. Informers entitled to one-third of fines.

Prosecution must be begun within two years.

GEORGIA.

(1) **Officers:** County game wardens; appointed by judge of the superior court upon petition of fifty freeholders; term two years.

Deputy wardens.—One for each militia district in the county, appointed by county warden, for two years and charged with enforcement of game and nongame bird laws; may arrest all persons found in act of violating game and bird laws and exercise same ministerial powers as sheriffs in arrest of persons charged with violating law.

Compensation.—Costs and fees to which sheriffs are entitled for similar services and one-half of all fines collected when they are instrumental in securing convictions.

Nongame-bird wardens.—One or more for each county, appointed by judge of superior court, with powers of sheriff to make arrests.

Compensation.—One-half of all fines collected, the other half paid to school fund of county.

(4) **Administrative provisions:** Judges of superior courts required to give the game and nongame bird laws in charge to grand juries at each regular term of said court.

Prosecution must be begun within two years.

IDAHO.

(1) **Officers:** State fish and game warden; office established March 13, 1899; term two years; bond, $5,000; salary, $1,800 per annum; allowance of $1,000 per annum for traveling expenses and $1,000 per annum for salary of a clerk, who has charge of the office, under bond of $3,000.

Duties and powers.—To supervise in person the protection of game and fish and enforce the laws relating thereto; to be an active executive officer and take the field in person whenever possible; to report quarterly to the governor, and biennially to the governor and legislature, and to issue hunting licenses.

Deputies.—One chief and two assistant deputies; bond, $3,000; salary of chief deputy, $1,200; of assistants, $1,000 per annum; traveling expenses, $600 per annum; county deputies, one or more for any county, appointed by the State warden on request of ten or more resident taxpayers; bond, $500; compensation, $3 per day, not exceeding 150 days of actual employment each year; expenses allowed to each warden when performing duties outside his district. The State warden and deputies required to enforce the law, and inspect depots, cars, hotels, and other places where they have reason to believe game is held for storage, sale, or shipment; authorized to search tents, packs, wagons, and camps, with or without warrant, where they have reason to believe game illegally taken is to be found; to seize game held in possession during the close season; to arrest, with or without warrant, any person found violating the law and take him forthwith before a justice, probate, or municipal judge having jurisdiction for immediate trial.

(2) **Other officers:** Sheriffs, deputy sheriffs, constables, city marshals, and police officers are ex officio game and fish wardens, with all the powers of wardens, and are required to enforce the game law in their respective jurisdictions. County attorneys required to prosecute all cases in their respective jurisdictions.

(3) **Game protection fund:** License fees and fines constitute a game and fish fund in the State treasury.

(4) **Administrative provisions:** Licensee required to exhibit license when requested by warden.

Prosecution must be begun within one year.

ILLINOIS.

(1) **Officers:** State game commissioner; office established in 1899; term during incumbency of the governor making appointment; salary $2,500 per annum; allowance of actual and necessary traveling expenses and authority to engage not to exceed ten office employees.

Duties and powers.—To enforce the law; to bring and cause to be brought actions and proceedings for violations; to report annually to the governor.

Game wardens.—Sixteen in number, appointed by the commissioner with the approval of the governor; salary $900 per annum and expenses; entitled to one-half of the proceeds of sale of confiscated game when they file complaint; jurisdiction throughout the State.

Deputy game wardens.—Not to exceed three for each county, appointed by the commissioner; compensation not exceeding $2 per day of actual employment, necessary traveling expenses, and one-half of all fines when they file complaints; jurisdiction throughout the State.

Special deputy game wardens.—As many as necessary, appointed by commissioner; compensation one-half fines when they file complaints.

Commissioner and all wardens have full authority to serve and execute all warrants and processes of law issued by any court in the enforcement of the game law in the same manner as constables; may arrest on sight and without warrant persons detected by them actually violating the law and may take such persons before any competent court and make complaint, which court shall proceed with the case in the same manner as in misdemeanor cases; must cause an investigation of all violations coming to their notice and cause proceedings to be instituted if the proof warrants such action; must seize on sight, without process, game found in possession of any person or corporation contrary to law. Not liable for damages through wrongul seizure of game.

(2) **Other officers:** Sheriffs, deputy sheriffs, coroners, and police officers are ex officio deputy game wardens and are required to enforce the game law; States' attorneys must supervise enforcement in their counties and prosecute all offenders on receipt of information of violations.

(3) **Game protection fund:** License fees, one-half of all sums recovered in any penal action and of fines imposed when deputy warden files complaint, also one-half of proceeds of sale of confiscated game constitute a State game protection fund.

(4) **Administrative provisions:** Any person may institute a prosecution in the name of the people of the State of Illinois before any justice of the peace or any court of competent jurisdiction; any person filing complaint in a penal action or instituting prosecution is entitled to one-half of the recovery; affidavit before justice of the peace by the commissioner or any warden that game is in possession of any person or corporation contrary to law is ground for issuance of a search warrant directed to any constable of the county, commanding him to search for such game and when found to seize and keep it subject to order of the justice. (For further procedure see p. 163, secs. 19–22.) Seized game to be sold; licensee while hunting must have license with him ready to exhibit; action of debt lies for recovery of fine for violation of license provisions; alteration of license declared to be forgery and punishable as such; violators of trespass section of the law may be prosecuted before any justice of the peace or by indictment or information in any court in the county,

and owners or persons in possession of the premises are not required to prove title to the premises; the purchase, sale, exposure for sale, possession for sale, or conveyance contrary to law, of each animal or bird is a separate offense; sale, exposure for sale, or possession for sale of game during close season, except five days after close of open season, is prima facie evidence of violation of law; possession of game by transportation company in close season, even in course of transit through the State from another State, is prima facie evidence that it was killed or trapped contrary to law.

Prosecution must be begun within six months.

INDIANA.

(1) **Officers:** Commissioner of fisheries and game; office established February 13, 1899; term four years; bond $2,000; salary $1,200 per annum; expenses $1,200 per annum, payable from the general treasury.

Powers and duties.—Required to investigate methods of preserving and propagating useful game and song birds; to introduce valuable game birds; to report results of investigations to general assembly biennially. Invested with all the powers of road supervisors and township trustees in enforcement of game laws; authorized to have his appearance entered with any prosecuting attorney when he brings action for violation of law, and to assist, personally or by deputy, in the prosecution.

Deputy game wardens.—Appointed by commissioner; compensation allowed by commissioner, to be paid out of fish and game protection fund, but not to exceed $60 per month, except in case of chief deputy.

Commissioner and wardens are peace officers for purpose of enforcing the game and fish laws and may arrest, without warrant or process, persons violating or attempting to violate such laws.

(2) **Other officers:** Road supervisors required under penalty to enforce game laws or have them enforced.

(3) **Game protection fund:** Resident and nonresident license fees and $20 taxed as costs in each case, where commissioner or warden brings action, are paid into State treasury to credit of fish and game fund to be used in paying expenses and rewards for enforcement of fish and game laws.

(4) **Administrative provisions:** Same as in other criminal cases.

Prosecution must be begun within two years; in case of hunting on Sunday within six months.

IOWA.

(1) **Officers:** State fish and game warden; office established October 1, 1897; term three years; salary $1,200 per annum, paid from State treasury.

Duties.—To enforce the game and fish laws and to report biennially to the governor.

Deputy game wardens.—Appointed by State warden, receive no regular salary, but are allowed reasonable compensation paid from game protection fund by supervisors of county, and, if informant, $5 extra, taxed as costs and collected from defendant. (County not liable for such fee.) State warden and deputies required to seize, without warrant, fish and game taken or possessed unlawfully, and authorized to seize and destroy, without warrant, devices used for taking game without being liable for such action.

(2) **Other officers:** Sheriffs, constables, police officers, peace officers, and county attorneys required to see that the laws are enforced; sheriffs, constables, and police officers have same powers and authority as deputy wardens. Attorney-general required to give his opinion on questions concerning the game laws, when requested by State warden.

(3) **Game protection fund:** Nonresident license fees paid into county treasury to credit of game protection fund.

(4) **Administrative provisions:** Any person may institute proceedings to enforce game law, prosecuting attorney and informant each entitled to a fee of $5 to be paid by defendant. Seized game to be sold and proceeds used in paying expenses of seizure, the balance to be paid into the school fund; possession of game in close season prima facie evidence of unlawful capture; proof of probable cause for believing in concealment of game unlawfully possessed ground for issuance of search warrant to examine any place.

Prosecution must be begun within three years.

KANSAS.

(1) **Officers:** State fish and game warden; office established in 1905; term, four years; salary, $1,500 per annum.

Duties.—Enforcement game and fish laws, including inspection at reasonable times of all places where meat, fish, and game are kept for sale, shipment, or storage for pay.

Deputy fish and game wardens.—One or more for each county, appointed by State warden upon request of ten or more resident taxpayers; removable by State warden at any time; entitled to same mileage as constables, and to receive $10, collected as costs from defendant, in cases of conviction when arrest made by them.

State warden and deputies invested with power of constables or police officers to arrest, without warrant, persons caught in act of violating the law, and with a warrant under other circumstances, and to bring the offenders before a proper court for trial; may demand production of a hunting license by holder.

(2) **Other officers:** Constables, marshals, and police officers required to inquire into and prosecute all violations of game laws, and to make complaint in such cases without being liable for costs; may demand production of hunting license by holder; neglect to prosecute renders them guilty of misdemeanor. If county attorney fails to prosecute any case the court may appoint an attorney to conduct it, who shall receive fee of $10, to be collected from the defendant upon conviction.

(3) **Game protection fund:** License fees paid into State treasury to credit of the State game and fish warden fund.

(4) **Administrative provisions:** Unnecessary for State in any prosecution to allege or prove the true or ornithological name of any bird, or that such bird was not taken for scientific purposes; possession of game, except by person lawfully killing it, or of Hungarian partridge, or Mongolian or Chinese pheasants, except for propagation, prima facie evidence of violation of law; violation as to each animal or bird a separate offense; $25 reward to be paid any person furnishing evidence leading to conviction for killing antelope.

Prosecution must be begun within two years.

KENTUCKY.

(1) **Officers:** County fish and game wardens, one or more for each county; appointed by the county judge to serve during his pleasure under bond approved by him; compensation, residue of all fines, in cases prosecuted by them, after payment of costs and expenses to other public officers, and usual sheriff's fees for serving and executing process.

Duties and powers.—Required to enforce all laws for protection of fish, game, and birds. Authorized to execute and serve all warrants issued in any case under the game laws, with powers of sheriffs; to arrest, without warrant, any person detected in the act of violating the law; to require aid in the execution of any process or in arresting, without warrant, any person found in act of violating the law; to seize, without warrant, game in the possession of any person found in act of violating the law and to confiscate such game and destroy the guns or other implements with which it was taken or killed, and to convey forthwith such person before a magistrate having jurisdiction and file complaint against him.

(2) **Other officers:** Mayors of cities and towns required to have their policemen and constables search for and arrest persons having game unlawfully in possession or offering it for sale in close season; same police duties required of market masters and clerks.

(4) **Administrative provisions:** Proof that the law has been violated by a nonresident, or person whose name is unknown, ground for issuance of a warrant for arrest of such person; proof of probable cause for believing that game unlawfully taken has been concealed ground for issuance of a warrant to search any place and to arrest the person in whose possession said game is found; possession of game in close season prima facie evidence of illegal capture; unlawful killing, capture, possession, sale, or transportation of each animal or bird a separate offense, and two or more offenses may be joined in same warrant or indictment; game and guns or other implements with which game was killed or taken if found in possession of any person in act of violating law may be seized and confiscated or destroyed; offender to be taken forthwith for trial before a court having jurisdiction. Informers entitled to one-half of fines.

Prosecution must be begun within one year.

LOUISIANA.

(1) **Officers:** Game wardens, one or more in each parish, appointed by the police jury.

Powers.—To arrest without warrant any person found violating the law or hunting without license when one is required: to search without warrant any cold storage or refrigerating plant, car, vessel, vehicle, or package in which they may believe game birds are illegally kept, and to confiscate all game birds found in possession of anyone during close season.

Any warden or peace officer may arrest on sight any person hunting without license when one is required.

(3) **Game protection fund:** Nonresident and unnaturalized foreign-born resident license fees and all fines for violations of game laws, less informer's half, are paid into the State treasury and constitute a State game protection fund.

(4) **Administrative provisions:** Licensees required to exhibit license to warden or other officer upon request.

Prosecution must be begun within one year from notification to a public officer empowered to direct a public prosecution; six months where the punishment is a fine or forfeiture.

MAINE.

(1) **Officers:** Commissioners of inland fisheries and game; commission established in 1886; composed of three members—one, the chairman, who serves for three years, at a salary of $2,000 per annum; one, who serves for three years at a salary of $1,000, and one, the land agent, who serves as long as he is land agent, at a salary of $2,000 per annum.

Duties and powers.—To introduce and distribute valuable food fish and birds; to see that the laws are enforced, to issue all licenses, and to report to the governor annually in December. Authorized to shorten or abolish, for periods of not more than four years, any season for taking game or fish; to adopt rules and regulations necessary for carrying the law into effect; to grant permits for taking big game and birds for park purposes in the State; to take game for propagation or scientific purposes; to adjust and pay from funds derived from nonresident license fees claims for damage done crops by deer; vested with all powers of fish and game wardens in enforcing the law.

Fish and game wardens.—Appointed by the governor, upon recommendation of the commissioners, for three years; bond, $2,000; required to enforce the laws and regulations for the protection of game and fish throughout the State; required to arrest all violators and prosecute them; vested with powers of sheriffs to serve process and entitled to same fees therefor; authorized to require aid in executing their duties; to seize game and fish unlawfully taken or possessed and firearms of aliens hunting without license; to arrest, without warrant, persons believed to be guilty of violating the law, and to search and examine, without warrant, camps, wagons, cars, stages, tents, packs, stores, warehouses, and other places, except dwelling houses and sealed railroad cars, where game is supposed to be concealed.

Deputy game wardens.—Appointed by the commissioners; have same powers as game wardens and are charged with same duties.

Guides.—Nonresidents who enter upon wild lands of the State intending to camp or kindle fires while hunting, during certain months, must be in charge of registered guides. Guides required to report to commissioners number of persons guided and other information desired.

(2) **Other officers:** Sheriffs, deputy sheriffs, constables, and police officers have same powers and charged with same duties as wardens and receive same fees. County attorneys are required to prosecute all violations coming to their knowledge.

(3) **Game protection fund:** Nonresident and alien license fees, fines, and receipts from sale of confiscated game and firearms of aliens, fees for licenses to guides, camp-keepers, taxidermists, hunters, trappers, marketmen, and dealers in skins, and for shipping fish and game, paid into the State treasury to the credit of the commissioners of inland fisheries and game for use in enforcing game and fish laws.

(4) **Administrative provisions:** All game killed, bought, transported, or had in possession in violation of law must be seized, and in case of conviction sold, but only for consumption in the State, seized firearms of unlicensed aliens must be sold; corporations may be arrested by service of attested copy of warrant, upon return of which they are deemed constructively in court and fine imposed may be collected by execution; offender may obtain possession of his game which has been seized by giving bond in double the value of same; any officer authorized to enforce game laws may recover penalties by an action on the case in his own name or by complaint; municipal and police judges and trial justices have concurrent and original jurisdiction upon complaint, with supreme judicial and superior courts in all prosecutions under the game laws; participants in violation of the game laws may be compelled to testify, but their testimony can not be used against them in any prosecution; possession of moose and deer by a transportation company in close season prima facie evidence of illegal killing; possession of jack-light in any camp or place of resort for hunters in the inland territory of State prima facie evidence that it is kept for unlawful use, and such light may be seized by any officer. One-half of fines for destroying posters of the commissioners paid to informer; judges of municipal and police courts and trial justices required to make returns to the commissioners of prosecutions before them for violation of the game laws; warrants to search dwelling houses in the daytime only, and any other places at any time may be issued by any magistrate; on or before October 1 of each year the commissioners are required to notify the superintendent of every transportation company in the State of the names of the wardens (restricted to four for any one company) designated by them to exercise the right of search; aliens must exhibit their license upon demand of any officer qualified to enforce game laws; possession of firearms by aliens on wild lands or in woods of the State without license prima facie evidence of hunting without license.

Criminal prosecution must be begun within six years; action by an individual for recovery of a penalty within one year; and by the State within two years.

MARYLAND.

(1) **Officers:** Game warden; office established April 4, 1896; salary, $1,200 per annum and part of fines when prosecutions are instituted by him or his deputies; allowance of $600 per annum for expenses; term, two years.

State fishery force may be required to assist game warden in enforcing game and fish laws upon application to the governor.

Deputy game wardens appointed by the governor upon recommendation of the warden, either for particular locality or for whole State; paid such sum as the game warden may agree with them, from fines or otherwise; receive one-half of net proceeds of sale of game when they make complaint.

Game warden and deputies required to enforce the game laws and to obtain information concerning all violations; have powers and authority of constables and of policemen in cities; may arrest, without warrant, persons suspected or known to be guilty of violating the law.

(2) **Other officers:** State's attorneys and sheriffs required to advise and assist game warden and deputies when requested by them.

(3) **Game protection fund:** Fines, after payment of costs, paid to game warden if prosecution is instituted by him or his deputies.

(4) **Administrative provisions:** Informer receives one-half of fine, the other half paid to school fund; affidavit of game warden or deputy to unlawful possession of game, ground for search warrant directed to any constable, who shall search for game, seize it, and return the warrant within not less than twelve hours nor more than twenty-four; upon return of the warrant the justice shall hear and determine the case, and if the game is found to have been possessed in violation of law, order sale of same; immediately upon entry of judgment constable must post two notices of sale, and at time mentioned in notice shall sell to highest bidder, giving certificate of sale; appeal from judgment may be taken bv defendant within two hours; 10 per cent of proceeds of sale paid to constable for services as auctioneer, and 50 per cent of net proceeds paid into school fund; wardens not liable to damages for wrongful seizure; possession of big or swivel gun prima facie evidence of intent to use it in violation of law, and presence at night with gun near place where shooting occurred prima facie evidence that possessor has violated the law.

Prosecution must be begun within one year.

MASSACHUSETTS.

(1) **Officers:** Board of commissioners on fisheries and game; composed of three members; organized in 1865; jurisdiction extended to game in 1886; term, five years.

Duties.—To protect and propagate game and fish and to investigate questions relating thereto; issue nonresident hunting licenses.

Deputy commissioners appointed by commissioners.

Powers.—Commissioners and deputy commissioners have power to arrest without warrant persons found violating game laws, and to search, with warrant, any boat, car, box, locker, crate, package, and any building, except dwelling house, for game taken or held in violation of law, and to seize such game.

(2) **Other officers:** Members of district police and all officers qualified to serve criminal process have authority of commissioners and deputies in arresting violators and executing search warrants.

(4) **Administrative provisions:** Possession of nongame birds prima facie evidence of unlawful capture and possession, and of deer, killed in the State, that possessor has violated the law; setting trap on land frequented by game and possession of ferret in such place prima facie evidence of a violation of law; complaint under oath of the concealment of game unlawfully taken or held is ground for issue of

search warrant; game unlawfully taken or held, found under a search warrant, shall be forfeited; one-half of fines, penalties, and forfeitures to be paid to complainant and one-half to Commonwealth, but where a deputy commissioner paid by the State makes complaint the whole fine is paid to the State; unnaturalized foreign-born persons must exhibit their licenses upon demand of any commissioner or deputy, warden, or officer authorized to serve process, and nonresident licensees must produce their licenses to any person on demand.

Action must be begun within one year if by individual for recovery of a penalty or a forfeiture, the whole or part of which inures to his benefit; otherwise within two years. Criminal prosecution must be begun within six years.

MICHIGAN.

(1) **Officers:** State game and fish warden; office established in March, 1887; term, four years; bond, $5,000; salary, $2,000 per annum; allowance for expenses necessarily incurred.

Duties and powers.—Required to enforce game laws; to bring and cause to be brought, and to prosecute and to cause to be prosecuted actions and proceedings for violation of game laws; has powers of sheriff to serve criminal process and to require aid in executing it; may arrest, without warrant, any person caught by him in act of violating law and take such person forthwith before a justice of the peace or magistrate having jurisdiction for trial; such arrests may be made on Sunday and the offender tried as soon as may be on a week day; may make complaint and cause proceedings to be instituted without sanction of prosecuting attorney of the county and is not required to furnish security for costs; may appear in any case and prosecute it in same manner and with same authority as prosecuting attorney; has power to search any person and examine any boat, conveyance, vehicle, game bag, coat, or other receptacle for game when he has good reason to believe that he will secure evidence of violation of law; must seize game and birds taken, killed, possessed, or shipped contrary to law and may do so without warrant; issues export licenses.

Chief deputy.—Appointed by State warden; salary, $1,500 per annum; allowed actual and necessary expenses; during absence or disability of State warden may execute duties of that office; must devote his entire time to duties of the office; must take constitutional oath.

Deputy game wardens.—Not exceeding ten, appointed by State warden, compensation $3 per day for time actually employed; have same power and authority as State warden.

County game and fish wardens.—Not exceeding three for each county, appointed by State warden; compensation such as county supervisors provide, may be employed by individuals and clubs interested in enforcement of game laws within their respective counties; have powers of the State warden, and are subject to his supervision and control.

Audubon Society wardens.—Four in number, appointed by State warden upon recommendation of Michigan Audubon Society; have powers of deputy game wardens, but receive no compensation from State or county; territory assigned by Audubon Society.

Wardens not liable for damages on account of any search or seizure made in accordance with law.

(3) **Game-protection fund:** All fees from nonresident licenses and one-third of all fees from resident licenses, export and scientific permits paid into State treasury for payment of salary and expenses of State warden and deputies. Twenty-five cents from every resident license fee paid into county treasury for use of county supervisors in payment of deputy and county wardens, sheriffs, and constables for services connected with enforcement of game laws.

(4) **Administrative provisions:** Proof of probable cause for believing in concealment of game or birds killed, taken, possessed, had under control, or shipped

contrary to law, is ground for issuance of warrant to search any place, and to cause any building, enclosure, or car to be entered, and any apartment, chest, box, locker, crate, basket, or package to be broken open and contents examined by warden; all persons violating law whether as principal, agent, servant, or employé equally liable with principal; any person liable for violation by his agent, servant, or employé done under his direction or with his knowledge; game, birds, and apparatus seized disposed of as court before whom the offense is tried, or any court of competent jurisdiction may direct; violation as to each bird or animal a separate offense. Dogs pursuing or following upon track of deer declared a public nuisance, and may be killed by any person. Proof of possession of dead body, or part thereof of any game or birds in close season prima facie evidence of illegal killing, also that it was taken or killed in Michigan, to disprove which defendant must show by testimony of party who actually killed or caught it that it was taken in another State, and whenever it is shown that such game was so killed or caught, it is prima facie evidence that it was killed or caught in violation of the laws of that State; interfering with wardens in their search for evidence of violations prima facie evidence that the person so doing has violated the law; possession of deer in red or spotted coat prima facie evidence of violation of law; wearing or possessing an artificial light in the woods prima facie evidence of violation of law; any person shown to have had possession of game or birds in close season must establish lawful possession thereof, and State is not required to aver or prove that it was not for purposes authorized by law.

Prosecution must be begun within one year for violations of sections 5804–5809 of Compiled Laws of 1897 [relating to export of game and its possession when taken unlawfully in another State], otherwise within six years.

MINNESOTA.

(1) **Officers:** Board of game and fish commissioners; established in April, 1891; composed of five members; term four years; members serve without compensation, but are allowed their necessary expenses.

Duties and powers.—Required to enforce game and fish laws; propagate useful game; collect and disseminate statistics and information germane to purposes of game laws; seize and dispose of all game and fish taken, killed, transported or possessed contrary to law, and all implements unlawfully used; issue nonresident licenses; report to the governor biennially. They may employ such assistants and game wardens as may be necessary to carry out the law, and may fix their term of service and compensation; may secure specimens of game for exchange with commissioners of other States; may offer and pay rewards for information leading to arrest and conviction of offenders for violation of game laws, as follows—$50 for moose and caribou; $25 for deer, and $10 for game birds.

Executive agent.—Appointed by commission from its members; must devote his entire time to duties of the office and exercise all rights and powers of commission when it is not in session; bond, $5,000; salary not to exceed $2,500.

Wardens.—Such number and at such compensation as commission may determine; bond, $500.

Attorney.—Commissioners may employ an attorney or attorneys to appear for them in all civil actions in which they or their wardens may be officially interested; to perform such services as they may require; to asssist county attorneys in criminal prosecutions and when they do not prosecute, to conduct such prosecution in name of the State, with all the authority of such county attorney; compensation fixed by the board and paid from its funds.

Commissioners, executive agent, and wardens have full power and authority to serve and execute all warrants and processes of law issued by any court in enforcing the game laws in same manner as sheriffs and constables; to arrest without warrant persons found in act of violating the law; may call to their aid any sheriff, constable, police officer, or any other person when necessary to enforce the law; required to inspect hotels, restaurants, or any place commonly used for storage of meats, game, and fish; to seize game illegally taken, killed, shipped, or possessed; to seize, abate, and destroy, without warrant, all illegal contrivances for taking or killing game.

(2) **Other officers:** Sheriffs, constables, and other peace officers are required to enforce game laws and have the powers and are charged with same duties as wardens, except in the inspection of hotels, restaurants, and storage rooms. County attorneys also required to enforce the laws.

(3) **Game protection fund:** Appropriation, $35,000 per annum; license fees and all moneys collected by commission from whatever source, except fines (which are paid to the county), paid into State treasury and credited to game and fish fund, to be used in enforcement of the game and fish laws.

(4) **Administrative provisions:** Agent or employé of another, or one acting through or by an agent or employé, not exempt from punishment; common carrier or its agent aiding or abetting in illegal shipment of game guilty of misdemeanor; attempt to violate law a misdemeanor; "possession" includes actual or constructive possession. Evidence: Participant in violation may testify against any other person without incriminating himself and his testimony shall not be used against him; not necessary for prosecution to allege or prove that game was not domesticated or taken for scientific purposes; possession of game in close season prima facie evidence that it was property of State when taken or killed, that it was taken in State, and that it was taken in close season, unless tag of commission is attached. Complaint showing probable cause for belief that game illegally caught, killed, transported, or possessed is concealed or kept in any place, ground for issue of warrant to search such place and to break open any receptacle and examine contents. Confiscated game may be sold by commission; obstructing commissioners or any warden in discharge of his duties a misdemeanor; dogs used in violation of law public nuisance, and when so used may be killed by any person; licensee required to exhibit license to any person upon request, and any licensee violating any provision of law shall upon conviction forfeit license and deliver same to court before which tried.

Prosecution must be begun within two years.

MISSISSIPPI.

(1) **Officers:** County game wardens; appointed by county boards of supervisors, one in each county, on recommendation of ten or more citizens; term four years.

Duties and powers.—Required to report violations of game law; authorized to arrest all violators, to search, under warrant, any building not a private residence, any car, vehicle, vessel, or package; to confiscate all game found in possession in violation of law; exempt from liability for seizure of property unlawfully held in possession.

Deputy game wardens.—As many as deemed necessary; appointed by the game warden for each supervisor's district; term two years; same powers as warden.

(2) **Other officers:** Sheriffs, constables, and city, town, and village marshals required to arrest, with or without process, anyone they know or have reason to believe is violating police regulations; to seize game, fish, and appliances found in possession of such offenders and convey such offenders before the proper justice of the peace, mayor, or police justice.

(3) **Forest and game protective fund:** All license fees and 50 per cent of fines (other 50 per cent paid to informer) collected under game laws constitute a county 'forest and game protective fund,' to be used by boards of supervisors in paying wardens and deputies.

(4) **Administrative provisions:** Game taken contrary to law or regulations of boards of supervisors, and guns, dogs, traps, and appliances used in taking game unlawfully to be forfeited; court adjudging such forfeiture to allow prosecutor reasonable compensation from proceeds; disposition of forfeited hunting parapher-

nalia may be determined by board of supervisors; in case of delayed hearing of offender, magistrate may cause seized game to be disposed of before hearing, proceeds being held to abide result; breach of any regulation, order, or resolution of board of supervisors a misdemeanor and violation of police order renders game taken and appliances used subject to forfeiture.

Prosecution must be begun within two years.

MISSOURI.[a]

(1) **Officers:** State game and fish warden; office established in 1895; reorganized in 1905; term, two years; salary, $2,000 per annum, with allowance of $2,000 per annum for traveling expenses.

Duties and powers.—Required to supervise enforcement of game and fish laws; to direct prosecutions by county wardens when circumstances justify; authorized to make complaint and cause proceedings to be instituted against offenders.

(2) **Other officers.**—Sheriff of each county is ex officio game and fish warden for his county, and his deputies and all constables and justices of the peace are deputy wardens; compensation, same fees and costs allowed in other criminal prosecutions; wardens may make complaint and cause proceedings to be commenced against offender.

(4) **Administrative provisions:** Licensees required to exhibit their license to county wardens or deputies; wardens not required to furnish security for costs; wearing or having artificial light on the head prima facie evidence of hunting deer therewith contrary to law; game transported unlawfully must be confiscated and delivered to charitable institutions.

Prosecution must be begun within one year.

MONTANA.

(1) **Officers:** State game and fish warden; office established March 18, 1901; term, four years; bond, $3,000; salary, $2,400 per annum, and allowance of $2,000 per annum for expenses and $1,200 per annum for salary of office clerk.

Duties and powers.—Required to examine into violations of game laws and institute prosecutions; to issue hunting licenses; to report semiannually to the governor; has power of sheriff for arresting and prosecuting; supervises deputy and special deputy game and fish wardens; State warden is also State fire warden and ex officio member of board of fish commissioners.

Special deputies.—Not less than five nor more than twelve, appointed by the State fish and game warden for four years; bond, $1,000; salary, $1,500 per annum; $300 per annum for expenses, and same fees for services as allowed sheriff or constable; required to examine into violations, institute prosecutions, and report to the State warden monthly; vested with powers of sheriffs to arrest and prosecute throughout the State; when rendering services outside of his district a warden is entitled to his actual and necessary expenses.

Deputies.—Appointed by the State warden and vested with same powers as special deputy wardens.

All wardens have authority to arrest, without warrant, any nonresident found in the fields or forests or upon the waters of the State with a gun if he has not a license; to search any person, boat, conveyance, vehicle, fish box or basket, game bag or coat, or any other receptacle for evidence of violation of law, and to seize (and may do so without warrant) game unlawfully killed, taken, shipped, or possessed;

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[a] By repeal of act of March 10, 1905, the State game protection fund was abolished, and there is now no provision for deputy or county wardens except sheriffs and other peace officers.

may prosecute without giving security for costs, and may require a person in possession of a license to identify himself.

(2) **Other officers**: Guides (packers are required to qualify as such) required to take oath of office as deputy game wardens and to report to State warden at expiration of time for which employed; sheriffs, deputy sheriffs, and peace officers have powers of deputy game wardens, except in seizure without warrant; sheriff, peace officers, and county attorneys must prosecute violators when informed of violation of law, and failure to do so renders them liable to fine and imprisonment; sheriffs and peace officers may arrest without warrant any nonresident found with gun in fields or forests or on streams without license.

(3) **Game protection fund**: All fines, license fees, and other money collected under game laws to be paid into State treasury to credit of fish and game fund for payment of salaries and expenses of game and fish department. Proceeds from sale of firearms of Indians hunting outside their reservations (when seized by warden), to be paid into same fund.

(4) **Administrative provisions**: Proof of probable cause for believing game unlawfully shipped or possessed has been concealed is ground for issue of search warrant by any court having jurisdiction of offense, directed to any warden, sheriff, deputy sheriff, or constable to search any place, building, apartment, inclosure, or car, and to cause any chest, box, locker, crate, basket, or package to be broken open and contents examined; possession of dead body or part thereof of game prima facie evidence of killing on part of possessor, and of gun in field or forest or upon waters of the State by a nonresident who has not a license prima facie evidence of violation of law; game seized to be sold for highest price, purchaser to receive certificate of sale, and if person possessing seized game is convicted proceeds to be paid into game fund, otherwise to defendant; no liability incurred by officers for seizure and sale; wardens required to seize and sell firearms of Indians hunting outside an Indian reservation; judges of district courts required to call attention of grand juries to game laws; grand juries required to investigate all violations and if evidence warrants to indict; fines, bonds, and penalties may be collected by civil action in name of State.

Extradition.—If in any trial for a felony it is shown that defendant has violated the game law of another State the court shall hold him for ten days or time necessary to allow such State to extradite him, and county attorney shall immediately notify proper officers of such State of the facts.

Prosecution for misdemeanors must be begun within one year; for felonies within five years; civil actions within two years.

NEBRASKA.

(1) **Officers:** Game and fish commissioner; office established July 1, 1901; governor to be commissioner; term two years.

Duties and powers.—Required to protect, propagate, and breed valuable fish and game, song and insectivorous birds; to collect and distribute useful information concerning their protection and propagation; to publish and enforce the laws; to prescribe necessary rules, regulations, and forms; and to issue licenses.

Deputy game and fish commissioners.—Two in number, appointed by governor for two years, one to be chief deputy with office in Lincoln, one to have charge of fish hatcheries; chief deputy to receive salary of $1,500 per annum and expenses not exceeding $500; three deputies appointed by governor at $75 per month and expenses not exceeding $300 per annum while actually employed; governor may also appoint deputies for special purpose, who have authority of other deputies for that purpose but without compensation, and a secretary at a salary of $75 per month, or chief deputy may be made secretary with $300 addition to yearly salary.

Commissioner and deputies required to enforce the laws; vested with the powers of sheriffs to arrest and serve civil and criminal process in connection with their duties, and entitled to receive same fees as sheriffs; required to arrest, with or without warrant, violators of the law, and, with or without warrant, to open and examine, all places where game illegally taken or held is supposed to be and, if any be found to seize the same; to seize all game brought into the State in violation of non-export laws of another State and to dispose of the same in accordance with the laws of Nebraska.

(2) **Other officers:** Sheriffs and constables required to enforce game laws and to seize game or song birds taken or held in violation of law; to arrest, without warrant, any person they believe guilty of violating law, and with or without warrant, to open, enter, and examine all camps, wagons, cars, stores, stages, tents, packs, warehouses, outhouses, stables, barns, boxes, barrels, and packages for evidence of violation of law, and to seize any game or birds illegally held therein; county attorneys required to prosecute all offenders and see that laws are enforced, and constables, sheriffs, and police officers required to inform against and prosecute offenders. Any failure of such officers to perform their duties renders them liable to punishment for misdemeanor.

(3) **Game protection fund:** [The constitution of the State directs all fines, penalties, and license moneys, arising under the general laws to be applied exclusively to the support of public schools, hence there can be no game protection fund other than regular appropriations.]

(4) **Administrative provisions:** Dwelling houses may be entered only under authority of search warrant. Officer seizing game may, by paying reasonable compensation, take possession of and use vehicle employed in carrying such game for transportation to nearest railroad station, but public conveyance can not be so used. Civil action may be brought by commissioner for possession or value of game illegally held or shipped and writ of replevin shall issue without bond. Civil action no bar to criminal prosecution and vice versa. Proof as to part of a bird or animal sufficient to sustain charge as to whole. Violation as to any number of animals or birds of the same kind may be included in the same count and punished as separate offenses. Possession of game unaccompanied with valid license, prima facie evidence of unlawful killing; licensee must permit any officer to inspect and copy license; corporations may be brought into court by reading warrant of arrest to president, secretary, or manager, and fines enforced by execution against its property; no question of title to property trespassed upon shall defeat prosecution unless defendant shall establish his right to same; possession of game in close season for shipment or in transit prima facie evidence of violation of law; duty of every person when game is offered to him for shipment in close season to report same to commissioner or deputy; game seized and confiscated to be given to charitable institutions; advertising game on menu during close season, prima facie evidence of possession by proprietor; nets, traps, and other devices, except guns, used for illegal capture of game, to be summarily destroyed by any person and no liability incurred for such destruction; all fines and license fees to be paid into school fund; corporate authorities of any city, town, or county shall pay complaining witness out of general fund an amount equivalent to one-half the fine in every conviction; any person may prosecute in name of State.

Prosecution for offenses for which penalty prescribed by law is fine of less than $100 or imprisonment less than three months, must be begun within one year; otherwise within eighteen months.

NEVADA.

(1) **Officers:** One fish and game warden for each county appointed annually by board of county commissioners, upon petition of twenty resident taxpayers; salary not to exceed $20 per month, to be paid from general fund of county.

Duties and powers—Required to enforce game laws and may arrest violators in any county in the State.

Deputies appointed by county wardens have same powers.

Prosecution must be begun within one year.

NEW HAMPSHIRE.

(1) **Officers:** Board of fish and game commissioners; established 1878; composed of three members; term, five years; compensation, chairman $1,000, others $800 per annum and necessary expenses.

Duties and powers—To enforce game and fish laws; to prescribe regulations for transportation of game out of the State; to confiscate game illegally taken, and sell the same; to issue licenses; to publish the laws in pamphlet form at the end of each session of the legislature and to report biennially to the governor.

Special detectives appointed by board to assist in any prosecution, to be paid from fish and game fund.

Commissioners and detectives have powers of constables and may arrest on sight persons violating the law and any nonresident refusing or failing to exhibit his license; any person refusing to state his name shall be deemed a nonresident for the purpose of such arrest.

Detectives, constables, and police officers shall seize and destroy all guns or implements used in violation of law.

(3) **Game protection fund:** Fines, penalties, fees from nonresident licenses, and proceeds of sale of confiscated game to be paid into State treasury to credit of fish and game detective fund.

(4) **Administrative provisions:** Possession of carcass or hide of any moose, caribou, elk, or fawn or of more than two deer, or of game out of season, prima facie evidence that holder has hunted and killed same in violation of law; nonresident required to have license in his possession while hunting and to exhibit same to any person on request.

Prosecution for offenses for which penalty is fine of less than $100 or imprisonment less than six months must be begun within one year; otherwise within six years.

NEW JERSEY.

(1) **Officers:** Board of fish and game commissioners; board established March 22, 1895; composed of four members; term, five years; no salary, but members entitled to $200 each for traveling expenses.

Duties and powers.—Required to protect, propagate, and distribute fish and game; to enforce the game laws; to enforce such laws upon view or information, by arrest and prosecution of offenders without warrant or complaint; to report to legislature annually, with such recommendations as they deem useful; to exercise powers of wardens in enforcing the laws.

Fish and game wardens.—Twenty-five in number, appointed by the board for one year, or during its pleasure; one to be fish and game protector with supervision over others, salary $100 per month and an allowance of $300 per annum for expenses; the others to receive $50 per month and expenses not to exceed $200 per annum; required to enforce the laws; empowered to execute all processes connected with enforcement of game laws; to serve subpœnas; to call in aid of any constable, sheriff, or other peace officer when necessary for enforcement of the laws; to make summary arrests in cases of flagrant violations.

Deputy fish and game wardens.—Number deemed necessary by the board; have all powers and authority of the game and fish wardens and entitled to fees and emoluments of, and subject to the regulations provided for, such officers; receive no salary from the State.

All foregoing officers have authority of constables and power to arrest, without warrant, persons violating the game laws in their presence, to take such offenders before the proper court, and to make complaints against them; are entitled to same fees as constables; have right to search, without warrant, any boat, conveyance, vehicle, game bag or coat, or other receptacle when they have reason to believe that game laws have been violated; and to seize any game unlawfully taken, caught, killed, possessed, transported, or about to be transported.

(2) **Other officers:** Constables, police officers, and members of incorporated game societies have power to institute prosecutions and to arrest, without warrant, persons violating the law in their presence.

(3) **Game protection fund:** Nonresident license fees to be used to pay expenses of protecting and propagating game; one-third of fines or penalties to be paid to the board to be used in protecting game.

(4) **Administrative provisions:** Justices of the peace, district courts, and police magistrates have jurisdiction to try all offenses against game laws; penalties may be recovered in county where offense was committed, where offender is first apprehended, or where he may reside; such courts, upon receiving complaint in writing, duly verified, of a violation of law, are required to issue a warrant directed to any officer charged with enforcement of the game law commanding him to arrest the person charged and bring him before the court to be summarily tried, and in case of violation by a corporation the summons shall require such corporation to appear before the court on a day stated to answer said complaint, the summons to be served on the president, vice-president, secretary, superintendent, or manager of such corporation not less than five days before appearance day; complaint must specify the section of the law violated, and the time when and place where committed; proceedings for recovery of penalties must be brought in the name of the State with one of the officers charged with enforcement of the law as prosecutor; proceedings may be instituted and process served on Sunday; defendant not entitled to a jury; prevailing party recovers cost against the other; court may grant not more than thirty days' time for either party to prepare for trial; any party to a proceeding may appeal to the court of common pleas of the county; witnesses not excused from testifying because their testimony might incriminate them, but such testimony can not be used against them; proof or probable cause for believing that game illegally taken, killed, caught, possessed, has been concealed, or shipped, is ground for issuance of a warrant directed to a commissioner or warden commanding him to search any place and examine contents of any receptacle; all game seized to be disposed of as court may direct; persons furnishing evidence to secure conviction and person making complaint each entitled to one-third the fine; possession of deer and waterfowl in close season prima facie evidence of illegal possession.

Prosecution must be begun within two years.

NEW MEXICO.

(1) **Officers:** Game and fish warden; office established March 12, 1903; term, two years; bond, $2,000; salary, $1,800 per annum.

Deputy wardens for each county appointed by warden; compensation one-half of all fines resulting from prosecutions instituted by them.

All wardens required to enforce laws, institute or cause to be instituted prosecutions for violations, arrest violators, and secure evidence against them.

Fines.—One-half to be paid into county treasury for school purposes.

Prosecution must be begun within two years.

NEW YORK.

(1) **Officers:** Forest, fish, and game commission; established 1895; reorganized 1901 with one commissioner; term, four years; bond, $10,000; salary, $5,000 per annum and necessary expenses; may appoint a secretary and other necessary clerical assistants.

Duties.—To enforce forest, fish, and game laws; to establish three deer parks for breeding deer and wild game; care for and control forest preserves and parks, and perform such other duties as the legislature may provide for; must take constitutional oath; required to issue licenses, and to report annually, not later than September 30, to the legislature.

Deputy commissioner.—Appointed by commissioner; bond, $10,000; salary, $2,500 and necessary expenses; authorized to act for commissioner when latter is absent or unable to act; must take constitutional oath.

Game protectors.—Seventy-five in number; appointed by commissioner, to hold office during his pleasure, one to be chief protector with supervision over others; salary, $2,000 per annum and traveling expenses not over $1,000; after five years' service salary may be increased $500; three to be assistant chief protectors; salaries, first assistant, $1,400; second and third assistants, $1,200 per annum, and traveling expenses not over $750; other protectors, salary $600 per annum and expenses not over $450, also one-half of fines and penalties when recovered upon information furnished by them. They are required to enforce game and fish laws, execute all warrants, serve summons issuing from justice's court and subpœnas, search without warrant boats, cars, lockers, baskets, crates, game bags or other packages, and buildings, and with warrant any dwelling house to ascertain whether the laws have been violated; arrest, without warrant, persons violating laws in their presence; kill dogs found chasing deer in the Adirondack Park, and report monthly through the chief protector to the commissioner.

Special game protectors may be appointed by commissioner when recommended by supervisors of county or by game clubs, to have powers of game protectors, except searching without warrant; to serve without compensation from State and report to the chief protector.

(2) **Other officers:** Peace officers have same powers as game protectors, except right of search without warrant.

(3) **Game protection fund:** Annual appropriation; fines and penalties are paid to commissioner, who pays the cost of collection out of same; one-half penalty collected in any action by individual or game society also paid to commissioner.

(4) **Administrative provisions:** The game laws are almost exclusively enforced by civil actions for recovery of the penalty, and such actions must be brought on order of chief protector or commissioner, and if in a justice's court may be brought in town or county where penalty is incurred or in the county where defendant resides; commissioner may employ special counsel to prosecute, and he fixes compensation therefor; any person, on giving security for costs, or any society or corporation for the protection of game, may recover in his or its name penalties for violation of game and fish laws, and in case of collection receives one-half thereof; probability of concealment of game illegally captured is ground for issue of search warrant; possession of deer in last ten days of open season presumptive evidence of unlawful taking; no one excused from testifying because his testimony might tend to convict him of a crime, but such testimony can not be used against him in any prosecution, and when he is called by State and so testifies any prosecution of him under the game laws, about which he testified, is barred; any person may summarily destroy devices for unlawfully taking fish and game, without liability therefor; presence of dog in forest inhabited by deer presumptive evidence that owner thereof is violating law and such dogs may be killed by any person; possession of flesh or

any part of moose, elk, caribou, or antelope in open season for deer presumptive evidence of illegal capture by possessor; courts of special sessions, police courts in towns and villages, and courts in cities having jurisdiction to try misdemeanors shall have exclusive jurisdiction of offenses under game laws, and such jurisdiction shall extend throughout the county.

Action must be begun within two years.

NORTH CAROLINA.

(1) **Officers:** Audubon Society of North Carolina; incorporated March 6, 1903. The secretary is the chief executive officer of the society.

Objects and powers.—To promote among the citizens of the State an appreciation of the value of song and insectivorous birds; to encourage the instruction of children on the subject; to secure enactment and enforcement of necessary laws for the preservation of birds and game; to appoint officers to enforce such laws; and to raise funds for carrying out the objects of the society.

Treasurer appointed by governor; term, during good behavior; required to report annually to governor. *Secretary* elected annually by the society; salary, $1,800 per annum.

Bird and game wardens appointed by governor upon recommendation of secretary; to hold office during good behavior; compensation fixed by society; have powers of constables; required to prosecute persons or corporations having game in possession contrary to law; to see that the laws are enforced; and to obtain information regarding all infractions thereof.

(3) **Game protection fund:** Proceeds from nonresident licenses and sale of game seized remitted to State treasury to constitute a fund known as the 'bird and game fund,' and to be paid out upon orders and vouchers of Audubon Society.

(4) **Administrative provisions:** Affidavit of reasonable cause for believing game to be in possession of common carrier in violation of law ground for issue of search warrant directed to warden to search cars, warehouses, and receptacles, and to seize such game; seized game to be sold at auction by warden, and purchaser to receive a certificate of lawful sale; nonresident required to exhibit his license to warden or police officer on demand.

Prosecution must be begun within two years.

NORTH DAKOTA.

(1) **Officers:** One district game warden for each of two districts; original office established in 1895 and reorganized in 1903; term, two years; bond, $1,000; compensation, 30 per cent of license fees and one-third proceeds of sale of confiscated game.

Duties.—To superintend and aid in enforcement of laws.

Deputy game wardens.—Appointed by district game wardens in their respective districts, one for each county having less than 3,000 inhabitants, two for each county having more than 3,000 and less than 7,000, three for every other county, and special deputies, when considered necessary by the warden, to serve during his pleasure; compensation, 40 per cent of license fees, two-thirds of proceeds of sale of confiscated game, and such fees as constables are entitled to when making arrests; required to inform themselves of all violations and prosecute same, and to arrest offender under warrant sworn out before any justice of the county or without warrant if offender is caught in act of violating law, in which case party arrested shall be immediately taken before a competent court and a warrant obtained; to report seizure of game to district game warden at once and turn same over to him on request.

All wardens have powers of constables for enforcing game laws; are required to seize game illegally killed, shipped, or possessed, and may do so without warrant.

(2) **Other officers:** Peace officers required to seize game taken, shipped, received

for shipment, had in possession or under control in violation of law, and may do so without warrant; to report seizure to district game warden and turn same over to him on request; entitled to two-thirds proceeds of sale of game seized by them.

(3) **Game protection fund:** Eighty per cent of fees from hunting licenses and proceeds from sale of confiscated game are paid to wardens for their services; 20 per cent license fees paid into State general fund.

(4) **Administrative provisions:** Proof of probable cause for believing that game taken, shipped, or possessed in violation of law has been concealed is ground for issue of search warrant by competent court to search any place described in warrant and to break open any apartment, chest, box, locker, crate, packet, or package and examine contents; game seized by deputy wardens and peace officers considered in possession of district warden and subject to his direction, to be sold within State with understanding that purchaser may deal with it as if killed or possessed lawfully; misdemeanor to hinder or obstruct any officer in discharge of duty; State's attorneys required to prosecute any Indian violating law; hunting license subject to inspection by any person on demand; 20 per cent of license fees paid into State general fund and 10 per cent retained by county auditor for his services in issuing license.

Prosecution must be begun within two years.

OHIO.

(1) **Officers:** Commissioners of fish and game; commission established in 1886; composed of five members; term, five years; bond, $2,000; serve without salary, but entitled to all their expenses. Have complete control of all matters pertaining to birds, fish, and game, and required to enforce the laws for their protection.

Chief warden.—Appointed by commissioners for two years; bond, $2,000; salary, $1,500 per annum and expenses, not to exceed $1,000, paid from appropriation for use of commissioners; required to visit all parts of the State to direct and assist other wardens.

Deputy State wardens.—Such number as necessary appointed by commissioners for two years; bond, $200.

Special wardens.—Appointed by commissioners in such number and for such period as commissioners may direct; have all the powers of deputy State wardens and required to perform the same duties; bond, $500.

Compensation of wardens.—Commissioners may direct that any fines collected in prosecutions by deputy State wardens be paid to them, and all wardens are entitled to same fees as a sheriff is paid in like cases under the criminal laws; commissioners may pay deputy State and special wardens such compensation from funds appropriated for their use as they deem proper.

All wardens required to enforce the laws for protection of birds, game, and fish, and to search any place where game is unlawfully possessed; empowered to execute and serve all warrants and processes of law arising from enforcement of game laws in same manner as sheriffs; may arrest on sight and without warrant persons detected by them in act of violating law; have power of sheriffs to require aid in executing any process; must seize, and may do so without warrant, game unlawfully in possession, and guns, traps, and other devices with which the same was taken.

(2) **Other officers:** Sheriffs, deputy sheriffs, constables, and other peace officers required to enforce laws for preservation of birds, game, and fish; have same powers as wardens and entitled to same fees; prosecuting attorneys receive 20 per cent of fines collected in prosecutions conducted by them.

(3) **Game protection fund:** Fines, penalties, and forfeitures (unless otherwise directed by commissioners) to be paid to president of commission and by him placed in State treasury to credit of fund for use of commissioners; nonresident license fees

and fees for permits to collect birds for scientific purposes are also paid into State treasury for use of commissioners.

(4) **Administrative provisions:** Persons arrested without warrant to be immediately taken before a magistrate, and upon complaint made by warden to be tried; arrest may be made on Sunday, and offender required to give bond for his appearance on a week day as soon as practicable after arrest; prosecutions by wardens and police officers for offenses not committed in their presence can only be instituted on approval of prosecuting attorney or under direction of attorney-general; guns, nets, traps, or other devices used in unlawful capture of game or birds declared public nuisances to be seized and forfeited to State; cost of seizure to be a lien on such property subject to no exemption, and a writ of replevin not to lie to regain possession of such property, but latter to be held to await final determination of case; warden or officer seizing implements must keep them and within three days institute proceedings for their condemnation, such implements to be sold and proceeds paid into State treasury; if defendant pleads guilty no condemnation proceedings necessary; officer or person filing complaint entitled to writ of error to review adverse decision. (For further details see pp. 223–225, secs. 8, 9, and 10.) Discovery of any gun, net, trap, or other device set, maintained, or used in violation of law, prima facie evidence of guilt of person using, owning, or making claim thereto, and unlawful possession of game, prima facie evidence of guilt of possessor; reception of game for shipment to a point without the State, prima facie evidence that it was killed or taken for purpose of so shipping; licensee required to carry with him his license and to exhibit to any warden or officer on demand. Seized game to be forfeited to the State.

Prosecution for Sunday hunting must be begun within ten days; for other offenses within three years.

OKLAHOMA.

(1) **Officers:** Territorial game and fish warden; office established March 10, 1899; term, four years; compensation, one-half the fee taxed in each conviction, and fees of sheriffs for making arrests and serving process.

Duties and powers.—Required to enforce game and fish laws and to bring or cause to be brought actions and proceedings for violation of law; authorized to prosecute in same manner as, and without sanction of, county attorney; to examine any boat, conveyance, vehicle, fish box or basket, game bag or coat, and any other receptacle where he has reason to believe evidence of violation of law will be secured, and to seize, with or without warrant, game unlawfully taken, possessed, or transported; vested with power of sheriffs to serve criminal process and to require aid in executing the same; authorized to arrest, without warrant, any person caught by him violating laws; directed to search any place, without warrant, for game he has reason to believe is held for shipment, and seize same and arrest, without warrant, the person in whose possession it is found.

County game and fish wardens.—Appointed by warden, with like powers, and authorized to appoint deputy county wardens with like powers. County wardens and their deputies receive one-half fee taxed in every conviction within their county.

(2) **Other officers:** All county and township officers required to file affidavit against persons known to them to have violated the laws. Sheriffs, marshals, and constables required to search, without warrant, any place where they believe or are informed that game is held for transportation and arrest the party in possession.

(4) **Administrative provisions:** Any person may prosecute violators and without bond for costs; resisting or hindering officer making search prima facie evidence of violation of game law; proof of probable cause for believing that game unlawfully possessed has been concealed is ground for issue of search warrant to enter any compartment, chest, box, locker, crate, basket, or package; game seized to be disposed of as court may direct; wardens not liable for such seizure; persons

hindering or obstructing wardens guilty of misdemeanor; arrests may be made on Sunday when law is violated on that day; in prosecutions in justice's court fee of $10, and in district court fee of $25, taxed as costs against defendant, to be distributed equally between Territorial game warden and county warden; possession of game prime facie evidence of killing within Territory, and fact that game protected by Oklahoma was killed elsewhere prima facie evidence that it was killed there unlawfully; county attorney required to institute suit against common carriers for violation of transportation laws, and a fee of $100 to be taxed as costs, to be paid to such attorney; fee of $10, taxed against defendant in case of sale of game, to be paid county attorney prosecuting; in prosecutions for violating law against transportation of game informer entitled to one-half of fine, and a fee of $50, to be taxed as costs in such case, to be paid to county attorney conducting prosecution.

Prosecution must be begun within three years.

OREGON.

(1) **Officers:** State game and forestry warden; office established February 18, 1899; term, four years; bond, $5,000; salary, $1,200 per annum and expenses not to exceed $500 per annum.

Duties and powers.—Required to enforce game laws; bring or cause to be brought actions and proceedings to recover fines and penalties, or to inflict punishment; to issue market hunting licenses; to report annually on the 1st of December to the governor; to seize, with or without warrant, game unlawfully taken, killed, shipped, or possessed; authorized to search, with or without warrant, boats, conveyances, vehicles, game bags, coats, and other receptacles, cold storage rooms, and packages or boxes held for shipment or storage believed to contain evidence of a violation of law without liability for such search and seizure; authorized to search any person who he has reason to believe has in his possession evidence of violation of game laws.

Special deputy game and forestry wardens.—As many as may be necessary, appointed by State warden, for such time as he designates, and vested with same powers given him; compensation fixed by State warden, not more than $2 per day for time actually employed, necessary expenses, and one-third of fines in certain cases where they prosecute.

All wardens have authority to arrest, without warrant, persons found by them violating the game laws and to take such persons before any court having jurisdiction for trial.

(2) **Other officers:** Sheriffs, deputy sheriffs, and constables are ex officio game, fish, and forestry wardens and have powers of such wardens; required to report under oath to the circuit court at every term any violations known to have occurred within the county; entitled, in addition to all other fees, to one-third or one-half, according to law violated, of the fine in cases prosecuted by them.

(3) **Game protection fund:** License fees and fines collected for violation of hunting license laws constitute a game fund.

(4) **Administrative provisions:** Proof of probable cause for believing that game illegally possessed has been concealed is ground for issue of a warrant to search any building, inclosure, car, boat, compartment, chest, box, crate, basket, or package; seized game to be disposed of as court before whom offender is tried, or any competent court, may direct; possession of game in close season prima facie evidence such game was taken in violation of law; interference with an officer searching for evidence of violation prima facie evidence that person so doing is guilty of violation of law; district attorney to prosecute violations on order of State warden; informers entitled to one-half the fine in certain cases, and after payment of expenses of trial the remainder, if any, to be paid into general fund of State; licensee required to exhibit license upon demand to any officer charged with enforcement of game laws or to any person upon whose lands he may be hunting.

Prosecution must be begun within two years.

PENNSYLVANIA.

(1) **Officers:** Board of game commissioners; established in 1895; composed of six members; term, three years; no compensation.

Duties.—To protect and preserve the game animals and birds and nongame birds; to enforce the game laws; to collect, classify, and preserve data and information relative to game protection; to report to the governor annually in December.

Game protectors.—Ten in number, appointed by board, one to be chief protector and secretary, with supervision over the others; term during pleasure of board; bond, chief protector $1,000, others $500; protectors may receive salary or per diem, as board may agree with them, and expenses, exclusive of traveling, not to exceed $2 per day. They have power to serve all processes, to arrest, without warrant, persons violating the game law in their presence; to arrest on Sunday; to search, without warrant, any place for game when they have good reason to believe that the laws have been violated, and to seize game unlawfully possessed; in making arrests may call any citizen to their aid; may purchase and sell game when by so doing they can discover violations of law, game so used to be delivered to some charitable institution when no longer needed for evidence.

Deputy game protectors.— One for each county, appointed by board; bond, $300; have all the powers of protectors and receive same compensation as constables for similar services.

Special deputy game protectors.—Number at discretion of board, which makes the appointments; serve without compensation from State or county; have the powers of game protectors.

All officers required to enforce the game laws, and authorized to seize guns, shooting paraphernalia, and game belonging to party suspected of hunting without license; are exempt from liability for seizure of game, guns, and appliances in accordance with law.

(2) **Other officers:** Constables are ex officio game wardens for their respective counties, have powers of protectors; in addition to statutory fees are entitled to $10 for every conviction upon their testimony, one-half to be paid by the county, other half by the State; required to report any violation known to have occurred in their county to the court of quarter sessions at each term. Police officers and market clerks are required to arrest persons having game unlawfully in possession and vending same; members of State police force empowered to act as game wardens. Forest wardens vested with power to arrest, without warrant, persons violating game laws on the forest reserves.

(3) **Game protection fund:** All penalties recovered where protectors or deputy protectors prosecute and one-half, less expense of recovery, where they furnish evidence, paid to secretary of board for its use; in other cases, with a few possible exceptions, informers are entitled to one-half the fines; other half paid to State; one-half the license fees paid into State treasury for use of board, other half into county treasury.

(4) **Administrative provisions:** Every magistrate, alderman, and justice has power of summary conviction under the game laws; information or complaint of violation of law is ground for issue of a warrant, directed to any game warden, protector, constable, or police officer, commanding him to arrest offender; proof of probable cause for believing that game unlawfully caught, killed, possessed, or shipped has been concealed is ground for issue of a warrant to search any building or place, and, after demand and refusal, to break it open; guns and shooting appliances found in place searched, if owner be a nonresident, to be seized and held till fine and costs imposed upon offender are paid, and to be sold if such fine and costs be not paid in twenty days; game seized by a protector and that found in possession of a person hunting without license, when such is required, to be sent to nearest hospital; that seized by constable or warden to be disposed of as court before whom

offender is tried may direct; interference with wardens and protectors in discharge of their duties punishable by fine of $100; nonresidents and unnaturalized residents hunting without license forfeit their guns, which are to be held till fine imposed is paid, and sold if fine be not paid in ten days after advertisement, proceeds to be used to pay fine, and residue, if any, to be paid to owner; any person may, without incurring liability, kill dogs found pursuing or on the track of deer or fawn, and any officer may kill any dog upon affidavit made by any person that it has been seen pursuing deer within a year; any dog pursuing game in close season off land controlled by its master, unless wearing a collar with name and address of master, declared a public nuisance and may be killed by owner or lessee of land upon which it is hunting or by any game officer; proof of possession of game, except in open season and fifteen days thereafter, prima facie evidence of a violatlon of law by the possessor; possession of gun by nonresident or unnaturalized foreign-born resident on waters or in field without a license prima facie evidence of violation of law; possession of a ferret prima facie evidence of intent to use it unlawfully; district attorneys are required to prosecute where penalty exceeds that giving jurisdiction to a justice or alderman; licensee required to exhibit his license upon demand of any officer; persons arrested on Sunday may be committed for that day, but must be proceeded against as soon as possible on a week day following; guns and shooting paraphernalia used by any person hunting for hire to be forfeited; all boats, decoys, guns, and other devices used in violation of law, unless fines and costs are paid, to be forfeited to board to be disposed of as it directs, and board may use in discharge of its duties any funds arising from such disposition; any citizen may prosecute violators; persons violating the game laws may sign an acknowledgment thereof and pay to any sworn protector or deputy protector the full fine and costs and receive a full satisfaction and discharge from such officer; costs of prosecution brought by officers charged with the enforcement of game laws to be paid by county if such prosecution fails through legal cause.

Prosecution must be begun within one year, "except where the defendant is taken in the act or in a pursuit immediately following," when the limitation is two years.

RHODE ISLAND.

(1) **Officers:** Commissioners of birds; commission established in June, 1899; composed of five members; term three years; no compensation.

Duties.—To protect birds and game and enforce laws.

Deputies.—Appointed by commissioners; term unlimited; no salary; required to enforce laws.

Commissioners and deputies authorized to arrest without warrant persons pursuing, killing, or having in possession any game or birds contrary to law, but persons so arrested not to be detained longer than twelve hours; to seize, without warrant, any game or birds in possession of any person at any time when killing of same is prohibited by law. They are not required to furnish security for costs when complaint is made by them.

(3) **Fines:** To be paid one-half to complainant and one-half to State.

(4) **Administrative provisions:** Complaint on oath to any magistrate authorized to issue criminal warrants that law protecting game and other birds has been or is being violated in any place is ground for issue of a search warrant directed to any officer competent to serve a warrant, but warrant not to be executed after sunset unless such course is directed by the magistrate. Licensees must exhibit license to any person demanding it.

Prosecution for violations of chapter 112, relating to game and nongame birds, must be begun within ninety days; in other cases if complainant is entitled to any part of fine within one year; if not, within two years.

SOUTH CAROLINA.

(1) **Officers:** Audubon Society of South Carolina, incorporated February 19, 1907.

Objects and powers.—To promote among the citizens of the State an appreciation of the value of wild birds, animals, and fish; to encourage parents and teachers to instruct children on the subject; to stimulate public sentiment against the destruction of wild animals, fish, birds, and their eggs; to secure enactment and enforcement of proper and necessary protective laws; to appoint officers to enforce such laws, and to raise funds for carrying out objects of the society.

Treasurer of the society appointed by the governor; term, during good behavior; required to report annually to governor. Secretary, who is executive officer, elected by the society annually.

Bird and game wardens.—Appointed by governor upon recommendation of the society; to hold office during good behavior; bond, $100; compensation fixed by society; have powers of constables; required to prosecute persons or corporations having game in possession contrary to law; to see that laws are enforced, and to obtain information as to violations; must take oath of office.

County game wardens, one for each county, appointed by the governor; must see that game and bird laws are enforced and report at each term of court of general sessions all violations of law and what steps were taken to punish offenders. They are exempt from road and jury duty.

Inspectors.—Appointed by board of county commissioners to enforce act for protection of game, fish, and terrapin on public lands and navigable waters; compensation fixed by board, but not to exceed 10 per cent of hunting license fees and fines for violation of the act.

(2) **Game protection fund:** Money derived from hunting licenses, fines, and forfeitures under act incorporating Audubon Society remitted to State treasurer to constitute a 'Game protection fund,' and to be paid out upon the order and vouchers of the society.

(3) **Administrative provisions:** Bird and game wardens may make affidavit before a magistrate that they believe game and birds are unlawfully in possession of a common carrier and may receive a warrant to search, open, enter, and examine cars, warehouses, and receptacles, and if such game be found to seize it; game so seized to be sold at auction by the warden; nonresidents and aliens must exhibit their licenses upon demand of any warden or police officer; any person may prosecute offenders of the game laws; person found in act of violating law relating to hunting on public land and water may be arrested at once and all guns, boats, and appliances in his possession and used in the violation may be seized, and upon his conviction forfeited to State, to be sold and proceeds divided equally between State and county; informers entitled to one-half the fine in cases arising under law protecting deer; reception by person or corporation of game or birds for shipment out of the State prima facie evidence of their killing for such purpose, and possession of partridge or quail, sold or offered for sale, shipped, or exported prima facie evidence of a violation of law prohibiting sale and export, and burden of proof is upon possessor to show that the bird was imported from another State; oath of one credible witness sufficient to convict for illegal hunting of deer; oath of landowner sufficient to convict for unlawful hunting on his land.

SOUTH DAKOTA.

(1) **Officers:** *Big game.*—Game wardens, one for each county where big game occurs; appointed by governor upon petition of ten citizens of such county; term, till successor is appointed; bond, $500; salary, $75 per month, paid from county game fund; jurisdiction extends throughout State.

Duties and powers.—Required to supervise in person protection of large game; to take the field during September, October, November, and December; to file information against persons violating law protecting big game when he knows or is informed of such violation; authorized to arrest, without warrant, persons found in the act of violating law, and at same time to receive and take into his custody any big game and to seize any gun found in possession of such person.

Deputies.—Number necessary appointed by warden to serve during his pleasure; no State compensation; must take oath of office and report all violations to warden.

Wardens and deputies may make reasonable examination of any tent, wagon, or place where hunters might conceal game or equipment when reasonable suspicion exists that game law is being violated.

Small game.—Fish wardens to be game wardens and to enforce laws protecting small game; required to arrest and prosecute all violators; authorized to arrest without warrant persons they find in act of violating law, and required to take such person before competent court for trial or give notice to State's attorney of county, who shall immediately prosecute the case; authorized to seize game killed or possessed in violation of law; jurisdiction extends throughout State; each warden must take oath of office; compensation, one-half fines recovered upon prosecutions by them and statutory fees in criminal cases.

Deputies.—Not more than ten, appointed by warden; jurisdiction throughout the county, with duties, powers, and compensation of wardens.

(2) **Other officers:** Sheriffs, deputy sheriffs, and constables charged with duty of enforcing game laws and given authority of wardens.

(3) **Game protection fund:** Fines or parts thereof, penalties and costs recovered, license fees, and proceeds of sale of dogs, guns, and game to be paid into county treasury for use of county commissioners to defray expenses and compensation of wardens in enforcement of game laws.

(4) **Administrative provisions:** *Big game.*—Justices of the peace have jurisdiction of all offenses; each act of hunting without license or in close season a separate offense; possession of animals in excess of legal number prima facie evidence of violation of law; licensee required to exhibit license on demand by officer authorized to enforce law; guns and game seized, upon conviction of the owner, to be forfeited, and court may adjudge such forfeiture and order game to be sold at public or private sale and proceeds paid into county game fund.

Small game.—Search warrant may be issued to search any place where game is concealed upon proof of probable cause for belief of such concealment, and boxes, chests, and packages may be broken open for examination; possession of game presumptive evidence of violation of law; presence outside of town with gun and dogs from July 1 to September 1 prima facie evidence of violation of law; guns, sporting implements, traps, and dogs used in violating the law, upon due proof before any competent court, to be adjudged forfeited, the traps destroyed, and other articles sold at public or private sale and funds paid into county game fund; game taken or held in violation of law to be seized and sold for benefit of county game fund; participant in violation of law may testify against confederates without incriminating himself. Any person making complaint and furnishing evidence leading to conviction is entitled to one-half the fine.

Prosecution for violations of laws relating to small game must be begun within one year; for violation of those relating to big game, within three years.

TENNESSEE.

(1) **Officers:** State warden of game, fish, and forestry; office established April 11, 1903; reorganized as a department of the State government April 15, 1905; term, eight years; bond, $500; no salary, but entitled to all fees for hunting licenses issued by him; may appoint a secretary.

Duties and powers.—Required to report to general assembly each session; to issue hunting licenses; may remove any warden at will and appoint his successor; has same powers for enforcement of the law as the subordinate wardens.

Special wardens.—Number considered necessary by State warden, appointed by him with jurisdiction throughout State; bond, $500.

County wardens.—One for each county, appointed by State warden; bond, $500.

Deputy county wardens.—Number in each county deemed necessary by county warden and appointed by him; bond, $250.

All wardens must take oath of office; hold office one year; are allowed one-half of all fines, penalties, and forfeitures collected in actions where they make the arrest or secure the conviction; are peace officers vested with the powers of sheriffs and are required to enforce game, nongame bird, fish, and forestry laws, and serve process; authorized to arrest, without warrant, and take offender before a justice of the peace or criminal court having jurisdiction and prosecute him; to seize and confiscate game taken or held contrary to law; to search, with warrant, box, barrel, wagon, car, cold-storage house, or other receptacle for contraband game.

(3) **Game protection fund:** License fees and one-half fines, penalties, and forfeitures under game laws are paid to State warden for use in enforcing the game laws.

(4) **Administrative provisions:** Upon the sworn statement of any person that game law has been violated, any justice of the peace having jurisdiction shall issue his warrant directed to any officer or warden commanding him to arrest offender and hold him for trial; nonresident having game in possession for export shall present his license and sworn statement to any officer demanding it; grand juries of circuit and criminal courts have inquisitorial power over violations of nongame bird laws and upon probable cause shall make presentment without prosecutor; judges of criminal courts required to give nongame bird act in charge to grand jury at each term; prosecutions and actions for penalties can be brought only on order of State warden or one of his deputies, and he may compromise or discontinue any action where violation is technical or where further prosecution would be oppressive; participants in offenses compelled to testify, but exempted from prosecution thereafter; State warden may go to any part of the State when informed of a violation of law and summon witnesses for purpose of ascertaining the truth of the charge in order to prevent useless and frivolous prosecutions; anyone summoned must attend and testify; resistance to or interference with a warden in discharge of his duties is a crime; violation as to each animal or bird is a separate offense; licensees must exhibit their licenses to any warden or owner of land upon their request.

Prosecution must be begun within twelve months.

TEXAS.

(1) **Officers:** Game, fish, and oyster commissioner; office of fish and oyster commissioner established April 26, 1895; title changed and duties extended to game July 1, 1907; term, two years; bond, $10,000; salary, $2,500 per annum, $700 of which is payable from game fund; allowed $600 per annum for necessary expenses.

Duties and powers.—To enforce game and bird laws and bring necessary actions for that purpose; to seize, without warrant, game or birds caught, taken, killed, possessed, or shipped contrary to law; to make regulations for export by licensees of game lawfully killed by them; may make complaints for violation of the law without sanction of prosecuting attorney, and shall not be required to furnish security for costs; has powers of a sheriff for service of criminal process and requiring aid in such service; may arrest, without warrant, persons found in act of committing an offense; must make monthly report to secretary of State; issues hunting licenses.

Chief deputy game, fish, and oyster commissioner.—Appointed by the commissioner to assist him and exercise his powers when he is absent or incapacitated; salary,

$1,800 per annum and necessary expenses, paid from game protection fund; bond, $5,000; must take oath of office.

Deputy game, fish, and oyster commissioners.—Appointed by commissioner; compensation $3 a day and necessary expenses while actually employed; have same powers as commissioner.

(3) **Game protection fund:** Hunting license fees constitute fund in State treasury for payment of $700 of salary of commissioner and salaries and expenses of his deputies.

(4) **Administrative provisions:** Seized game must be disposed of as court may direct; agents and employees of carriers and express companies are empowered by the game law to examine any package delivered to them for transportation to ascertain whether it contains game; each illegal shipment of game a separate offense; possession of game in close season is prima facie evidence of a violation of law.

Prosecution must be begun within two years.

UTAH.

(1) **Officers:** State fish and game commissioner; office established in 1899; term two years; bond $5,000; salary $1,200 per annum; contingent and traveling expenses $300 per annum; must take constitutional oath of office.

Duties and powers.—Required to supervise protection and distribution of game and fish; issue licenses, and to report to the legislature each session; authorized to take game and fish for purposes of propagation, cultivation, distribution, and scientific investigation.

Chief state fish and game wardens.—One for each county, appointed by commissioner with approval of county commissioners; term two years; bond $1,000; salary fixed by governor, but not to exceed $600 per annum; required to report in detail annually to commissioner.

Commissioner and chief wardens required to see that game laws are enforced; vested with powers and authority of sheriffs and constables; required to seize game taken, held, or transported contrary to law; to arrest with or without warrant any person they have reason to believe guilty of a violation of law, and if without warrant, to hold him till one can be obtained; to search, with or without warrant, any car, stage, pack, warehouse, store, outhouse, box, barrel, and package where they have reason to believe game taken or held contrary to law is to be found and to seize such game, if without warrant, to procure one soon as possible afterwards.

(2) **Other officers:** Sheriffs and constables required to enforce game laws in like manner and with same authority and powers as wardens.

(3) **Game protection fund:** All hunting license fees and proceeds from sale of confiscated game are paid into State treasury to credit of the fish and game fund.

(4) **Administrative provisions:** Any person giving information leading to conviction entitled to one-half the fine; game taken or held unlawfully or shipped or consigned for shipment out of State to be seized and sold; possession of any part of game in close season prima facie evidence of illegal taking, killing, or possession.

Prosecution must be begun within two years, when offense is triable by justice of the peace or police court; otherwise within three years.

VERMONT.

(1) **Officers:** State fish and game commissioner (from 1892 to 1904 a fish and game commission); present office established December 7, 1904; term two years; salary, $1,000 per annum; allowance for actual necessary expenses while absent from home on official business, for a clerk at $365 per annum and for necessary printing, postage, stationery, and blanks.

Duties.—To enforce the game and fish laws; to prosecute violations of the law and to issue deer licenses.

County fish and game wardens.—One, and not to exceed two, for each county, appointed by State commissioner; term one year; compensation, $2 per day and actual expenses while officially employed; may arrest on sight anywhere in the State persons found violating game law and retain them at expense of State until prosecution can be instituted, notice of such arrest to be given immediately to grand juror of town or State's attorney of county where offense was committed; may investigate violations anywhere in State.

Deputy county fish and game wardens.—As many as commissioner deems necessary, appointed by him; compensation, $1.50 per day and actual expenses while officially employed; same powers as county wardens.

(2) **Other officers:** Town grand jurors and State's attorneys required to prosecute all violations of game laws.

(3) **Game protection fund:** Fixed annual appropriation for care, protection, and preservation of game and fish, $5,500; all hunting license receipts and fines imposed under fish and game laws.

(4) **Administrative provisions:** Upon arrest and detention by a game warden of a person violating law and notice by such warden to town grand juror or State's attorney, such officer is required to file complaint against and prosecute offender forthwith; a justice may issue warrant to search, in daytime, a dwelling house or other place for game taken contrary to law or implements used for taking game; justices have jurisdiction of offenses up to $20; protected game, when snared, to be seized and forfeited to prosecutor; presence on public waters after sundown with firearm and torch presumptive evidence of a violation of law prohibiting shooting ducks by aid of torches; finding any dog of a kind commonly used to hunt deer, moose, or caribou hunting such animals in the forests prima facie evidence that the owner permitted such dog to hunt in violation of law; delivery to or reception by any person or corporation of game birds for shipment out of the State presumptive evidence that such birds were killed for a purpose other than consumption as food within State; possession by transportation company of game which has been taken in State in close season presumptive evidence that such game was taken in State unlawfully; possession of deer in close season, and of moose or caribou at any time, presumptive evidence of unlawful killing.

Prosecution must be begun within three years.

VIRGINIA.

(1) **Officers:** Two city game wardens in each city; appointed by city or corporation court upon application of five resident freeholders.

Magisterial district wardens.—One for each district, appointed by circuit judge upon application of five resident freeholders and board of supervisors, except in Accomac and Northampton counties, where they are appointed on recommendation of Eastern Shore Game Protective Association.

Wardens hold office four years; required to enforce all laws of State or United States for protection of birds and game; to arrest, with warrant, any person violating the law, and, without warrant, persons found in the act of committing such violations. Compensation consists of fee of $2.50 assessed in every conviction, to be paid warden securing conviction, and fees from funds derived from nonresident licenses. Refusal or neglect of wardens to prosecute violations subjects them to removal from office and to penalties for a misdemeanor.

(2) **Other officers:** Commanders of oyster police boats are constituted game wardens in their jurisdiction.

(3) **Game protection fund:** License fees divided equally among wardens of the county, but no warden to receive more than $300 per annum.

(4) **Administrative provisions:** Sneak boats, nets, traps, reflectors, and other unlawful appliances to be seized by any officer and held as evidence; if found to

have been used unlawfully, to be destroyed on order of court; possession of such appliances prima facie evidence of guilt; affidavit of concealment of game killed, taken, caught, shipped, or about to be shipped in violation of law ground for a warrant to search any place, and after demand and refusal officer may enter and examine any car, building, inclosure, or apartment for such game, and on finding it to seize it; game so seized to be disposed of as court may direct; all guns and hunting appliances found in such search to be seized and held subject to payment of fine and costs; appliances found in such search, not authorized by law, to be destroyed on order of court, others to be sold at auction twenty days after seizure unless owner pays fine or is acquitted; interference with game warden in discharge of his duties or resistance to lawful arrest a misdemeanor; persons hunting upon lands of another in Alexandria, Fairfax, Prince William, Stafford, and King George counties, without written permission, to forfeit $3 to informer for first offense, $6 for second, and $9 for each subsequent offense, and in addition to forfeit boats and other means of conveyance, guns, dogs, and hunting apparatus; persons so hunting may be arrested without warrant by any warden, sheriff, or constable, and the property forfeited may be seized and held to await determination of case; persons convicted a third time for violation of law required to give recognizance for good behavior for one year; possession of game in close season prima facie evidence of guilt of person in whose possession it is found.

Prosecution must be begun within one year.

WASHINGTON.

(1) **Officers:** State fish commissioner is ex officio State game warden; office established in 1899; term, four years; bond, $5,000; salary, $2,000 per annum and actual traveling expenses not to exceed $1,000 a year.

Duties and powers.—Has general supervision over enforcement and execution of all laws for protection of game and birds and full control and supervision over all county game wardens; vested with authority and powers of a peace officer; has authority to apply to attorney-general for official opinion of construction and interpretation of game laws; must report on December 1 to governor.

Chief deputy.—Appointed by State warden to serve during his pleasure; salary, $1,500 per annum and actual traveling expenses not to exceed $750 a year. Required to enforce all laws for protection of game and birds and prosecute violations thereof; has direction and supervision of all county and special deputy game wardens.

County game wardens.—One for each county, appointed by county commissioners; salary, $25–$100 per month; vested with all the powers and authority of a sheriff; are ex officio deputy State wardens and have same powers as chief deputy; must take oath of office; may be removed by county commissioners for neglect or nonperformance of duty.

Special game wardens.—Appointed by county warden; receive no salary; vested with powers of other game wardens.

All wardens have authority to inspect places where game is held for storage or shipment when they believe evidence of a violation of law is to be found, and if such be found they are required at once to institute proceedings for punishment of offenders; may arrest without warrant any person found by them violating laws and take such person before a justice of the peace or municipal judge having jurisdiction for trial; such action to be prosecuted by prosecuting attorney of county.

(2) **Other officers:** Sheriffs, deputy sheriffs, constables, city marshals, police officers, and forest rangers of the United States Government are ex officio game wardens and are required to enforce game laws; have same authority as wardens.

(3) **Game protection fund:** Fees from licenses issued by State auditor are paid into State treasury to credit of State game fund and those from licenses issued by

county auditor into county treasury to credit of county game fund; fines in certain cases are paid into county treasury for game fund.

(4) **Administrative provisions;** *Evidence:* Possession of game, except ducks, geese, brant, and snipe to the number permitted to be taken in November presumptive evidence of illegal taking.

Prosecution must be begun within one year.

WEST VIRGINIA.

(1) **Officers:** Game and fish warden; office established May 18, 1897; term, four years; salary, $1,000 per annum and allowance for mileage.

Duties and powers.—Required to enforce game and fish laws; to bring or cause to be brought actions and proceedings for violation of laws; authorized to prosecute in same manner as prosecuting attorney, without his sanction, and with same authority; to issue licenses; required to file in the office of the Secretary of State in December of each year a report to be transmitted to legislature at every session.

Deputy wardens.—Appointed by State warden, to hold office during his pleasure; to receive the fines when recovered on prosecutions brought by them; sheriffs, deputy sheriffs, or assessors may be appointed deputy game wardens with same authority as State warden in prosecutions.

All wardens are required to enforce game laws and vested with authority to search any person and examine any boat, conveyance, car, vehicle, fish box or basket, game bag or coat, or other receptacle for evidence of violation of law, and interference with such search is a misdemeanor; authorized to seize, without warrant, game unlawfully taken, shipped, or possessed, and to arrest, without warrant, persons found violating the laws; have powers of sheriffs to serve criminal process, and to require aid in executing it, and authority to employ an attorney to conduct prosecutions in case of refusal on part of prosecuting attorney.

(2) **Other officers:** Clerks and market masters required to arrest persons unlawfully in possession of or selling game; sheriffs, deputy sheriffs, constables, and chiefs of police required to prosecute violations and deemed guilty of an offense if they fail to do so.

(4) **Administrative provisions:** Proof or probable cause for believing that game unlawfully taken has been concealed is ground for issue of a search warrant to search any building, inclosure, or car, to break open any compartment, chest, bar, locker, crate, basket, or package and examine contents; interference or attempt at interference with such examination prima facie evidence of violation of law; seized game to be disposed of as court may direct; arrests may be made on Sunday; every person called as a witness is required to testify, but his testimony can not be used against him in any prosecution for such offense, and no person against whom such witness has testified shall be allowed to appear as a witness against him in any prosecution for same offense or one of like nature committed before prosecution in which he appears as a witness; possession of game in close season prima facie evidence of illegal killing; reception of deer, turkey, quail, and ruffed grouse for shipment out of State prima facie evidence of killing in State for such purpose; fee of $10 taxed as costs in every conviction to be paid to prosecuting attorney of county or attorney selected by warden to conduct prosecution; license fees and proceeds of sale of seized game to be turned into State treasury to credit of general fund; licensees must produce their license when required by prosecuting attorney, sheriff, justice of the peace, assessor, constable, any warden, or owner of land upon which they are hunting at time, and failure to do so is a misdemeanor.

Prosecution must be begun within one year.

WISCONSIN.

(1) **Officers:** State fish and game warden; office established May 5, 1891; term, two years; salary, $1,800 per annum and allowance for actual expenses.

Duties.—To secure enforcement of game laws and bring or cause to be brought actions and proceedings to recover penalties or fines for violation thereof; to devote his entire time to duties of his office; to report the transactions of his department to the governor in December of each year.

Special deputy wardens.—Two for each Congressional district, and as many additional deputies as are necessary, may be appointed by State warden, with approval of governor; receive actual expenses and a per diem payable from game fund only, fixed by warden, with approval of governor, for such time as they actually serve under direction of State warden; must carry an identification card issued by State warden.

County wardens.—Number determined by county board of each county, selected by a board of appointment, and appointed by State warden; compensation to be fixed by appointing board and paid out of county treasury like those of other county officers.

Selection of deputy wardens is made from those qualified by competitive civil-service examination.

Warden and deputies have authority of constables to execute and serve all warrants and processes issued by any court having jurisdiction of offenses under game laws; to arrest, without warrant, any person detected in act of violating any game law and to take such person before proper court and make complaint against him; upon receiving information of violation must cause thorough examination and institute proceedings if warranted by evidence; may seize and confiscate game illegally captured, possessed, or shipped, and sell same and pay proceeds, less expenses, into State treasury to credit of hunting license fund; authorized to examine at any time record of licenses issued by county clerks; to examine and open any package in possession of a transportation company suspected to contain game or to be falsely labeled; exempt from liability in performance of their legal duties.

(2) **Other officers:** Sheriffs, deputy sheriffs, coroners, and police officers are ex officio deputy fish and game wardens and are required to assist State and deputy wardens in enforcement of game laws; game officers of other States are declared agents of those States in Wisconsin and are authorized to follow game unlawfully shipped from their States into Wisconsin, seize same, and take it back into their State or dispose of it in Wisconsin according to laws of their State, such disposition to be made under supervision of an officer of Wisconsin; officers of other States are designated agents of Wisconsin for taking possession of, holding, and disposing of game. Attorney-general and his assistants required to advise State warden as to his duties, assist him in enforcement of law, and in prosecution of cases when warden deems it necessary; district attorneys required to prosecute actions for violation of game laws when wardens make complaint, if magistrate deem their presence necessary.

(3) **Game protection fund:** Fees from hunting licenses, permits to collect for scientific purposes, and proceeds from sale of confiscated game (if sale not prohibited) and devices constitute a 'hunting license fund' in the State treasury for the payment of salaries and expenses of State and deputy game wardens; one-third of fines for violation of game laws retained by county treasurer as a fund to reimburse county for expenses in enforcement of game laws.

(4) **Administrative provisions:** Apparatus or device not designated a public nuisance may be seized by warden and, after finding of illegal use, may be destroyed or sold as directed by court; those designated public nuisance shall, upon a finding of such unlawful use, be immediately destroyed; affidavit before a magistrate author-

ized to issue criminal process that affiant has reason to believe game captured or possessed contrary to law has been concealed, is ground for issue of a warrant commanding officer to whom directed to search premises designated, seize the game if found, and bring it before court issuing warrant to be used as evidence.

Prosecution must be begun within three years.

WYOMING.

(1) **Officers:** State game warden, office established February 15, 1899; term, four years; bond, $3,000; salary, $1,500 per annum and $200 per annum for contingent expenses, paid from general State fund.

Duties and powers.—Required to protect game and enforce laws relating thereto; to be an active executive officer and take field in performance of his duties; to report annually to governor; authorized to arrest, without warrant, persons found violating law or with game in possession in violation of law, and may employ an attorney when necessary, to be paid from game fund.

Assistant game wardens.—Three in number in different parts of State, appointed by warden; bond, $1,000; salary, $900 per annum, paid from game fund.

Special assistant game wardens.—One or more in each county as necessity requires, appointed by warden; bond, $500; compensation, $3 per day while actually employed, payable from game fund.

County game and fish wardens.—One for each county, appointed by board of county commissioners; compensation fixed and paid by commissioners out of county funds, not to exceed $3 per day while actually employed.

Assistants.—Number necessary in each county appointed by warden. All officers authorized to enforce game laws may arrest, without process, violators detected in the act; search any camp, wagon, and pack at any time; may seize game and fish unlawfully possessed, and when resistance is made to arrest, call upon any peace officer or citizen of State to assist in effecting arrest.

(2) **Other officers:** State and Federal forest rangers may be appointed special assistant game wardens; sheriffs, deputy sheriffs, and constables required, under penalty for omission, to arrest and prosecute violators; guides are ex officio assistant game wardens and are required, under penalty for omission, to report violations by one employing them; allowed $3 a day for time consumed in arresting and securing conviction, payable from State game fund.

(3) **Game protection fund:** Biennial appropriation and proceeds from confiscated game.

(4) **Administrative provisions:** Possession of game in close season prima facie evidence of violation of law; licensee required to produce license on demand of officer; each act of hunting without license constitutes a separate offense; license fees paid into general fund, and fines into general school fund. State game warden may pay reward of $300 for evidence leading to conviction for the crime of capturing, destroying, or mutilating game animals for their heads, antlers, horns, or tusks.

PART III.—EXTRACTS FROM LAWS WITH SPECIAL REFERENCE TO ENFORCEMENT.

The third part of this bulletin contains extracts relating to the enforcement of the game laws of all the States and Territories. These extracts have been carefully compared with the original statutes and have been brought down to date by inclusion of the amendments of 1907[a]. By the use of side heads in black-faced type the general contents of each section have been indicated so as to facilitate ready reference to any particular topic. The statutes are arranged chronologically and the sections in regular order except in Alabama, Illinois, Maine, and three or four other States in which the provisions relating to State officers are given first. Provisions not closely connected with the subject-matter of enforcement or immaterial to it, and such as relate solely to fish or their propagation, have been omitted. Such omission is indicated by three stars (* * *). Amendments to the original acts are plainly indicated, usually at the beginning of each section, and in several instances the text has been annotated by references to decisions of the courts involving the provision in question. Statements in the first part of the bulletin can, in most cases, be readily verified on referring to the proper paragraph under the corresponding State in Part III.

In selecting the matter here presented the three main objects in view have been (1) to furnish a convenient compilation for the use of those who do not have access to the statutes or who encounter difficulty in finding a particular provision in the mass of other matter usually contained in the laws, (2) to place at the service of wardens and others actively engaged in enforcement of the laws the provisions under which they may act, and (3) to bring together in compact and convenient form the provisions of the statutes of each State which have been found effective in order that persons interested in new game legislation may know the provisions in operation in other States.

ALABAMA

Laws of 1907, No. 18, p. 12.

State game and fish commissioner, election, salary : SEC. 17. That the members of the senate and house of representatives of this State shall meet in joint session as soon as practicable after the approval of this act, and in such joint session shall duly proceed to elect some person skilled in matters relating to game or fish, State Game and Fish Commissioner, said person shall be known as a State Game and Fish Commissioner of the State of Alabama, and shall hold his office until the first Monday after the second Tuesday in January, 1909, or until his successor in office is duly elected and qualified. The successor to the State Game and Fish Commissioner shall be elected by the qualified electors of the State at the general election in 1908 and every four years thereafter. The Department of Game and Fish of the State of Alabama, is hereby established and created, and shall be known and termed as such. The State Game and Fish Commissioner shall receive a salary of $2,500.00 (twenty-five hundred dollars) per annum, payable monthly out of the game and fish protection fund, in the same manner as other State officers are paid, but the said State Fish and Game Commissioner shall not be allowed any reimbursement for his expenses in travelling over the State in the discharge of the duties of his office.

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[a] Except those of Georgia, Michigan, Nebraska, and Nevada, which have not yet been received.

Accounts of commissioner, report: Sec. 18. The State Game and Fish Commissioner shall be provided with a suitable office in the State capitol, and is hereby authorized upon the approval of the governor to employ a clerk when necessary. At the end of each calendar month said game and fish commissioner shall file with the governor an itemized statement, under oath, of all sums of money received or expended by him in the discharge of his official duty, including clerical services, salaries, and expenses of deputies while traveling under special orders as hereinafter provided, postage, stationery, and other necessary incidental expenses. Upon the approval of such accounts by the governor, the State auditor shall draw his warrant for such amount which shall be paid monthly out of the game and fish protection fund and the clerk authorized by this act, shall receive two dollars per day while engaged in such service. The office and accounts of the State Game and Fish Commissioner shall be audited by direction of the governor in the same manner as the office and account of any other State office are audited.

Bond, oath: Sec. 19. [Bond of State Game and Fish Commissioner, $5,000; he is required to take the constitutional oath of office.]

Report: Sec. 20. The State Game and Fish Commissioner shall keep a seal of office which shall be used to authenticate all papers and documents issued and executed by him as such officer. In the month of October, in the year 1910, and every four years thereafter, the State Game and Fish Commissioner shall make a report to the governor showing the official business transacted by him. Such report shall show the number of hunter's license issued, together with all fees proceeding therefrom. It shall show what moneys have been received by the game and fish department from other fees and from other sources. It shall show the number of wardens employed under special instructions, and shall give all necessary information concerning the affairs of the department of game and fish. Such report to be published in pamphlet form.

Duties of commissioner: Sec. 21. It shall be the duty of the State Game and Fish Commissioner to enforce all laws that are now enacted or that may hereafter be enacted, for the protection, preservation, and propagation of game animals, birds and fish in this State, and to prosecute all persons who violate such law. Such game and fish commissioner shall at any and all times seize any and all birds, animals or fish which have been caught or killed at a time, in a manner or for a purpose or in possession or which have been shipped contrary to the laws of this State.

Printing, blanks: Sec. 22. [Blanks and necessary printing allowed the Commissioner, expense payable from game protection fund.]

Powers of commissioner and wardens: Sec. 23. The State Game and Fish Commissioner and his deputies shall have the same power to serve criminal processes as sheriffs and constables.

Wardens' appointment, term, powers: Sec. 24. The State Game and Fish Commissioner, shall as soon as practicable, after assuming the duties of his office, appoint by and with the consent and approval of the governor, some person skilled in matters relating to game and fish, game and fish wardens, in each county in this State, and such persons so appointed shall be known as county game and fish wardens. Said wardens shall assist the State Game and Fish Commissioner in the discharge of his official duties, and said warden shall have like power and authority herein provided for the State Game and Fish Commissioner, relative to the enforcement of this law, but said deputies and wardens shall be subject to the supervision and direction of the State Game and Fish Commissioner and subject to removal for cause by him. Said wardens shall hold office for four years, or until their successors are duly appointed; before entering upon the discharge of their official duties each county game and fish warden shall give bond in the sum of five hundred dollars, payable to the State of Alabama, with two or more sureties, to be approved by the secretary of State, conditioned that he will well and truly account for and legally apply all money which may come into his hands in his official capacity and that he will faithfully perform all the duties enjoined upon him by law.

Wardens' compensation: Sec. 25. Each county game and fish warden shall receive one-half of all fines, forfeitures and penalties collected in the county in which he holds office. And such moneys shall be so paid by the courts collecting the same, and the remainder shall be forwarded to the State treasurer and covered into the game and fish protection fund.

Publication of game laws: Sec. 26. The State Game and Fish Commissioner by and with the consent of the governor shall cause to be published in pamphlet form for general distribution the laws relating to game, birds and fish.

Ex officio game wardens: Sec. 29. All sheriffs, deputy sheriffs, marshals, constables, or other peace officers in this State are hereby declared ex officio deputy game and fish wardens.

License: Sec. 31. [Requires resident to procure license to hunt outside his beat, ward or voting precinct; fee, $1.00.]

Same: Sec. 32. [Requires resident to procure a license to hunt outside the county of his residence; fee, $3.00.]

Same: Sec. 33. [Requires nonresidents of the State, and aliens, to procure license to hunt; fee, $15.00.]

Game fund: Sec. 34. [Probate judges issue all licenses and they are required to remit to the State treasurer each month, the amounts they receive, less their fee of 15 cents for each license issued; the State treasurer must set aside all moneys so received as a game and fish protection fund.]

Game and fish protection fund: Sec. 39. All moneys sent to the State treasurer in payment of hunting licenses, fines, penalties and forfeitures, arising under the provisions of this act, shall be set aside by the State treasurer and shall constitute a fund known as the "Game and Fish Protection Fund," for the payment of the Salary of the State Game and Fish Commissioner and his necessary incidental expenses, also the payment of the expenses of the game and fish warden when acting under special instructions. The expenses incurred for any purpose or in consequence of this act, shall be limited to the amount of money in the game and fish protection fund, and in no event shall the State pay any such salaries or expenses or be liable in any manner therefor except to the extent of such game and fish protection fund, and the State Game and Fish Commissioner shall not issue any voucher nor shall the State auditor approve any voucher if issued by the said State Game and Fish Commissioner for any services or any expenses of any kind unless the money to pay such voucher shall at the time be on hand in the State treasury to the credit of the State game and fish protection fund.

Wardens' compensation in special cases: Sec. 40. Game and fish wardens acting under special instructions shall receive three dollars per day for their services.

Report of prosecutions: Sec. 41. That it shall be the duty of every justice of the peace, and clerk of any court before whom any prosecution under this act is commenced, or shall go on appeal and within twenty days after trial or dismissal thereof to report in writing the result thereof and the amount of fine collected, if any, and the disposition thereof to the State Game and Fish Commissioner. All moneys collected from fines, penalties or forfeitures under this act, shall belong to the game and fish protection fund with the exception of that part which under this act belongs to the wardens, and shall be paid over by the officer authorized to collect said money to the State treasurer on or before the first day of each month, and shall be conveyed by him into the game and fish protection fund. And the State treasurer shall report on the first day of each month to the State Game and Fish Commissioner the exact amount of money to the credit of the Game and Fish Protection Fund.

Fines: Sec. 45. All fines imposed under the provisions of this act shall be paid in lawful money, that is to say, in currency of the United States of America.

Charge to grand jury: Sec. 46. That circuit judges and the judges of concurrent jurisdiction in this State, be, and they are hereby required to give the grand juries when organized, the provisions of this act strictly in charge and to urge strict inquiry into infractions thereof.

Prima facie evidence: Sec. 9. * * * It is further declared unlawful to make use of any artificial light in hunting or killing deer. And the wearing or having such light on the head or any part of the body while hunting shall be prima facie evidence of the violation of this section. * * *

Warden's costs: Sec. 13. That when an arrest for a violation of this act is made by the State Game and Fish Commissioner or by any warden and the defendant is convicted, there shall be taxed as cost in favor of such warden making the arrest, the same fee as a constable is entitled to in misdemeanor cases, and if collected from the defendant shall be paid over to such warden and shall be his personal perquisite. But no fee shall be allowed in cases of acquittal.

Procedure, separate offense: Sec. 14. * * * whenever the possession, use, importation, transportation, storage, sale, offering or exposing for sale of game or birds, is prohibited or restricted, the prohibition or restrictions shall extend to and including every part of such game and a violation as to each animal or bird or part thereof shall be a separate offense and two or more offenses may be charged in the same affidavit, complaint or indictment, and proof as to part of a game bird or animal shall be sufficient to sustain a charge to the whole of. it; and the violation as to the number of animals or birds of the same kind may be charged in the same count and punished as a separate offense as to each animal, bird or game.

Corporation, arrest, &c.: Sec. 15. In cases of violation of this act by a corporation the warrant of arrest may be read to the president, secretary or manager in this State, or to any general or local agent thereof, in any county where the action or indictment is pending, and upon the return of such warrant so served the corporation shall be deemed in court and subject to the jurisdiction thereof, and any fine imposed may be collected by execution against the property of said corporation, but this section shall not be construed to exempt any agent or employee from prosecution.

Failure to perform duties, misdemeanor: Sec. 16. Any official, officers or warden, who shall fail to perform any act, duty or obligation enjoined upon him by the provisions of this act, shall be deemed guilty of a misdemeanor and on conviction shall be punished by a fine of not less than fifty nor more than two hundred dollars.

Approved Feb. 19, 1907.

ALASKA.

32 Statutes at Large, chap. 1037, p. 327.

Forfeiture of game, guns, boats, &c.: SEC. 6. That any person violating any of the provisions of this Act or any of the regulations promulgated by the Secretary of Agriculture shall be deemed guilty of a misdemeanor, and upon conviction thereof shall forfeit to the United States all game or birds in his possession, and all guns, traps, nets, or boats used in killing or capturing said game or birds, and shall be punished for each offense by a fine of not more than two hundred dollars or imprisonment not more than three months, or by both such fine and imprisonment, in the discretion of the court: *Provided*, That upon conviction for the second or any subsequent offence there may be imposed in addition a fine of fifty dollars for any violation of sections one and three, and a fine of one hundred dollars for a violation of section two.

Officers' arrest, seizure: It is hereby made the duty of all marshals and deputy marshals, collectors or deputy collectors of customs appointed for Alaska, and all officers of revenue cutters to assist in the enforcement of this Act. Any marshal or deputy marshal may arrest without warrant any person found violating any of the provisions of this Act or any of the regulations herein provided, and may seize any game, birds, or hides, and any traps, nets, guns, boats, or other paraphernalia used in the capture of such game or birds and found in the possession of said person, and any collector or deputy collector of customs, or any person authorized in writing by a marshal, shall have the power above provided to arrest persons found violating this Act or said regulations and seize said property without warrant, to keep and deliver the same to a marshal or a deputy marshal. It shall be the duty of the Secretary of the Treasury upon request of the Secretary of Agriculture to aid in carrying out the provisions of this Act: * * *

Approved, June 7, 1902.

ARIZONA.

Revised Statutes, 1901, Chap. XI, p. 149.

Fish and game commissioners, term: SEC. 171. The governor shall appoint three fish and game commissioners, who shall hold office two years and until their successors are appointed. The commissioners shall receive no compensation for their services.

Duties of business agent: SEC. 172. The commissioners so appointed may, by resolution, designate one of their number as the business agent of the board; and it shall be his duty to keep minutes of the acts and proceedings of said board from time to time, to collect, classify and present to said board such statistics, data and information as the board may order, or he may think will tend to promote the object of this title, and to conduct the correspondence and take charge of and safely keep the reports, books, papers, documents, etc., which may be collected by the commissioners, and to prepare an annual report of the board to the governor, which report shall contain such recommendations for legislative action as the commissioners may deem best calculated to promote the cultivation and increase of game and the food fishes in the Territory of Arizona.

Duties of commissioners; Fish: SEC. 173. [Duties of commissioners respecting fish culture.]

Duties of commissioners; Game: SEC. 174. It is the duty of the fish and game commissioners:

(1) To see that the laws for the preservation of fish and game are strictly enforced; and for that purpose they may from time to time employ such assistants as they shall deem necessary, without cost to the territory, which persons so appointed as assist-

ants shall have all powers and authority of sheriffs to make arrests for violation of such laws throughout the territory.

(2) To import the spawn or ova of fish suitable for food.

(3) To provide for the distribution and protection of game birds imported into this territory for the purpose of propagation, and also birds that are natives of this territory.

Posting lands; Penalties: SEC. 175. They may cause notices to be posted upon private grounds at the request of the owner or lessee of such grounds, that shooting or fishing therein is prohibited, and when such notices are posted by authority of such commissioner, it shall be a misdemeanor for any person to shoot or fish on such grounds, without the permission of the owner or lessee of such grounds, and punishable as misdemeanors are punishable in the Penal Code, and fines collected on conviction therefor shall, after deducting the expenses of the court, be paid over to such commissioners, to be by them expended in carrying out the objects of this chapter.

Laws of 1905, chap, 25, p. 29.

Prima facie evidence: SEC. 8. Proof of possession of any game or fish mentioned in this Act,[a] which shall not show evidence of having been taken by means other than a net, snare, trap or pound, shall be prima facie evidence in any prosecution for violation of the provisions of the preceding section [prohibiting netting, trapping and snaring game] that the person in whose possession such game or fish is found, took, killed or destroyed the same by net, snare, trap or pound.

License fees: SEC. 24. * * * The moneys received from the sale of nonresident licenses shall be used by the Fish and Game Commissioners in the proper discharge of their duties; provided, that the Fish and Game Commissioners shall include in their biennial reports a statement of all licenses issued under this section, and an itemized statement of all moneys expended, and the surplus, if any there shall be, shall be remitted to the Territorial Treasurer and placed in the General Fund.

Arrest: SEC. 25. A Fish and Game Commissioner and his deputies shall have authority to arrest without writ, rule, order or process any person in the act of committing a crime in violation of any of the provisions of this Act, and they are hereby made peace officers of this Territory for that purpose.

Peace officers: SEC. 26. * * * It is hereby made the duty of any peace officer to arrest any person or persons violating any of the provisions of this Act, and to take them before any civil authority competent to try the offense. Any peace officer, game commissioner, or deputies, who shall see, or be informed of, or become cognizant of, any person or persons violating any of the provisions of this Act, and who shall fail to perform his duty as prescribed in this section, shall, upon conviction thereof, be fined in the sum of twenty-five dollars. One-half of all fines collected under the provisions of this Act shall go to the person or persons upon whose testimony such conviction is secured; the remaining one-half shall be paid into the school fund.

Approved March 4, 1905.

ARKANSAS.

Digest of the Statutes, 1904, Chap. LXIX, p. 828.

Peace officers; Arrest; Penalties: SEC. 3622. The sheriff of each county, or any constable thereof, is hereby constituted *ex officio* game warden for his respective county, and his deputies shall be deputy game wardens, by virtue of their appointment as deputy sheriffs. It shall be the duty of the game warden or any constable or deputy, to make arrests, and prosecute offenders, under this act, as in other misdemeanor cases, before any justice of the peace, and without being required to give bond for costs. And it shall be a misdemeanor in office for any game warden or deputy to fail to prosecute violators of this act. All fines collected under this act shall go to that game warden or deputy or constable making the arrest and securing the conviction.

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[a] Deer, elk, sheep, goat, antelope, quail, partridge, grouse, pheasant, wild turkey, snipe, and rail.

Arrest: SEC. 3623. Any justice of the peace upon information received that any of the provisions of this act have been or are being violated, shall issue his warrant of arrest directed to any sheriff or constable, or other peace officer, commanding that said offender be at once arrested and held for trial. No bond shall be required for costs. Any constable, sheriff or other officer failing or refusing to serve said warrant, shall be guilty of a non-feasance in office, and upon conviction shall be fined in any sum not less than fifty nor more than one hundred dollars, and be removed from office.

Refusing or opening packages: SEC. 3626. Common carriers may refuse any package which they may suppose contains fish or game designed for export and may cause said package to be opened, or may satisfy themselves in any other way that said package does not contain game or fish.[a]

CALIFORNIA.

Political Code 1897, Art. I, p. 62.

Fish commissioners: [SEC. 343. There are 3 fish commissioners.]

Art. II, p. 69.

Appointment: [SEC.] 368. The following executive officers are appointed by the Governor, with the consent of the Senate: * * * (3) the fish commissioners [who hold office during the pleasure of the Governor].

Art. XVII.

Duties: [SEC.] 642. It is the duty of the Fish Commissioners:

1. To see that the laws for the preservation of fish and game are strictly enforced; and for that purpose they may from time to time employ such assistants as they shall deem necessary, which persons so appointed as assistants shall have all powers and authority of Sheriffs to make arrests for violation of such laws throughout the State.

* * * * * * *

7. To provide for the distribution and protection of game birds imported into this State for purposes of propagation.

8. To report biennially to the Governor a statement of all their transactions and disbursements.

Compensation: [SEC.] 643. The commissioners receive no compensation.

Appendix, p. 1031 (Statutes 1895, Chap. CLXV.)

County wardens: SEC. 1. The board of supervisors of each and every county in the state may, in its discretion, at their first meeting held in April, eighteen hundred and ninety-five, and at their first meeting held in January, eighteen hundred and ninety-seven, and in January every two years thereafter, appoint a suitable person to serve for the period of two years from the date of his appointment as fish and game warden of the county, which office is hereby created; * * *

Duties: SEC. 2. Said fish and game warden shall enforce the state laws, * * * relating to the protection of fish and game, and he shall be vested with all the powers of a peace officer to made arrests for the violation of such laws.

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[a] See Wells Fargo Express Co. *v.* State, 96 S. W., 189.

Salary: Sec. 3. The salary of said fish and game warden is hereby fixed, in accordance with the classification of counties, as follows:

Salary; Reports; Removal: Sec. 4 [as amended by Laws of 1905, Chap. CCCV]. For counties of the second class [150,000 to 300,000], one hundred and twenty-five dollars per month; for counties of the first and third classes [300,000 and over, 100,000 to 150,000], one hundred dollars per month; for counties of the fourth, fifth and sixth classes [38,000 to 100,000], the sum of seventy-five dollars per month; for counties of the seventh, eighth, ninth and tenth classes [27,400 to 38,000], the sum of sixty dollars per month; and for all other classes from the eleventh to the fifty-third, inclusive, the sum of fifty dollars per month. In addition thereto said warden shall be allowed a sum not to exceed twenty-five dollars per month for expenses incurred by him in the performance of his duties. Said salary and expenses incurred must be paid monthly from the county treasury. Said fish and game warden shall, before entering upon the discharge of his duties, execute a bond with sureties in such sum as may be required by the board of supervisors, for the faithful and proper discharge of his duties as such fish and game warden. Said warden shall report quarterly to the board of supervisors of his county, giving a detailed statement of all arrests made, convictions had, fines collected, and generally in regard to the management of his office. Such officers may be removed by the board of supervisors for intemperance, neglect of duty, or other good and sufficient reasons.

Approved March 26, 1895.

Penal Code 1897.

Prima facie evidence: Sec. 631. [as amended by Laws of 1905, chap. 287. Prohibits use of nets, pounds, cages, traps, set lines or wires in taking any game, and sale, transportation and possession of game so taken.] Proof of possession of any such birds or animals which do not show evidence of having been taken by means other than a net, pound, cage, trap, set line or wire, or by the use of any poisonous substance, is prima facie evidence in any prosecution for violation of the provisions of this section, that the person in whose possession such birds or animals are found, took, killed, or destroyed the same by means of a net, pound, cage, trap, set line or wire, or by the use of poisonous substance.

Penalties: Sec. 631b. [Added in 1901] All fines paid or collected for the violation of any of the provisions of sections [626–626k, 626m, 627–627b, and 631, including all provisions respecting seasons, methods, bog limits, etc.,] of this chapter, must be paid by the court in which the conviction shall be had into the state treasury to the credit of the game preservation fund, which fund is hereby created, and the moneys in said fund shall be applied to the payment of claims approved by the game commissioner of the state board of fish commissioners for the expense of protecting, restoring and introducing game into the state and to the payment of the expenses incurred in the prosecution of offenders against the provisions of the above named sections.

Laws of 1907, chap. 206, p. 247.

[An Act to require all persons who hunt to take out a license]

Fees: Sec. 3. [Resident $1; nonresident $10; alien $25.]

Disposition of fees: Sec. 6. All moneys collected for licenses as provided herein, and all fines collected for violation of the provisions hereof, shall be paid into the state treasury and credited to the game preservation fund.

Production and transfer of license—forfeiture: Sec. 8. Every person having a license as provided herein, who while hunting or killing game, refuses to exhibit such license upon demand of any officer authorized to enforce the game laws of the state, or any peace officer of the state, shall be guilty of a misdemeanor; and every person lawfully having such license, who transfers or disposes of the same to another person to be used as a hunting license, shall forfeit the same.

COLORADO.

Laws of 1899, chap. 98, p. 184.

DIVISION A.—GENERAL PROVISIONS.

Department of game and fish; Commissioner; Deputy Commissioner; Compensation: SEC. 1. [As amended in 1907] The department of game and fish is hereby created and immediately upon the passage of this Act, and every two years thereafter, the governor shall, by and with the consent of the Senate, appoint some person, skilled in matters relating to game and fish, to be the State Game and Fish Commissioner who shall be the head of the Game and Fish Department and shall take his office on the first day of April of each biennial period. The Governor may at any time remove the Commissioner for cause, and in vacation of the Senate may fill any vacancy in the office for the unexpired term by appointment in writing filed with the Secretary of State.

The Commissioner shall be a resident and citizen of this state, and shall hold his office for the term of two years or until his successor shall be duly appointed and qualified; the Commissioner shall receive a salary of eighteen hundred dollars ($1,800) per annum, together with his reasonable and necessary traveling expenses, not exceeding six hundred dollars ($600.) per annum, to be paid as the salary and expenses of other state officers; and such Commissioner shall have the power to appoint a Deputy State Game and Fish Commissioner at a salary of fifteen hundred dollars ($1,500.) per annum, together with his reasonable and necessary traveling expenses, not exceeding four hundred dollars ($400.) per annum, to be paid as the salary and expenses of the Commissioner are paid; and the Commissioner may revoke such appointment at any time and appoint a successor.

Bond: SEC. 2. [Bond of Commissioner $5,000.]

Office; Clerk: SEC. 3. The commissioner shall be provided with an office at the state capitol, and with suitable furniture, stationery and other facilities for the transaction of the business of his department. He may appoint a clerk at a salary not exceeding $1,000. per annum, and may at any time remove said clerk and appoint a successor.

Chief wardens; Deputy wardens; Special wardens; Posse; Bond: SEC. 4. [as amended by Laws of 1903, chap. 112] The commissioner may in writing appoint and keep in service not more than five chief game wardens, who shall be residents and citizens of this state, such appointments to be filed with the State Auditor. Each chief warden shall receive a salary of $900.00 per annum, and his reasonable and necessary traveling expenses, not exceeding $300.00 per annum. If deemed necessary for the proper enforcement of this act, the commissioner may, with the approval of the governor, appoint deputy game wardens for a limited time, and not exceeding ten in number at any one time, at a compensation not exceeding $100.00 per month, each, while actually engaged in duty, which shall be in full for services and ordinary expenses. The commissioner may also appoint special game wardens, to serve without pay, who shall have the same powers as deputy wardens. The commissioner may revoke the commission of any warden, and appoint his successor at pleasure. In case a posse is summoned by the commissioner to assist in the enforcement of this act the expenses thereof shall be paid by the state. The commissioner shall require of each warden the giving of a bond in a sum not exceeding $1,000.00 for the faithful discharge of his duties and the prompt accounting for and payment of any moneys coming into his hands by virtue of his office.

Regulations: SEC. 7. The commissioner shall have power to prescribe such rules, regulations and forms as may be required to carry out the true intent of this act, and not inconsistent herewith.

Game fund; Deficiency: SEC. 8. Except as herein otherwise specially provided, all moneys received under this act by a warden shall be paid over to the commissioner. Those received by the commissioner shall be paid over monthly to the state treasurer, and those received by the state treasurer, from whatever source, under the provisions hereof, shall constitute a game fund, and be used exclusively for the payment of the salaries and expenses incurred as provided herein, and in the event such fund shall at any time prove insufficient, the deficiency shall be paid out of any moneys in the state treasury, in the same manner as those of other state officers, and such appropriations shall be made as may be necessary therefor. Payments of salaries and expenses shall be made monthly upon verified accounts in detail, approved by the commissioner and governor, and warrants drawn by the auditor of state.

Duties and powers: SEC. 9. [Commissioner and chief wardens shall devote their entire time to the duties of their office, and shall prosecute violators of this law. They have all the rights and powers, throughout the state, of sheriffs and constables.]

Biennial report: SEC. 10. [The commissioner required to make biennial report to the governor, cost of report not to exceed $200.]

Peace officers; Arrest; Search: SEC. 11. The commissioner and every warden throughout the state, and every sheriff and constable in his respective county, is authorized and required to enforce this act and seize any game or fish taken or held in violation of this act, and he shall have full power and authority, and it shall be the duty of every such officer, with or without a warrant, to arrest any person whom he has reason to believe guilty of a violation thereof; and with or without a warrant, to open, enter and examine all camps, wagons, cars, stages, tents, packs, warehouses, stores, outhouses, stables, barns, and other places, boxes, barrels, and packages where he has reason to believe any game or fish taken or held in violation of this act, is to be found, and to seize the same; Provided, That a dwelling house actually occupied can be entered for examination only in pursuance of a warrant.

Use of vehicle: SEC. 12. Where game or fish, while being transported, is seized under this act, the officer making such seizure shall have authority, upon payment of reasonable compensation therefor, to also take possession of and use any animals and vehicles used in such transportation for the purpose of conveying the game or fish seized to a conveniennt railroad station or place of safe-keeping or sale, and also for conveying any person arrested for the unlawful possession of such game or fish to a place of hearing or trial, and no liability shall attach to such officer by reason thereof, but this section shall not apply to any animal or vehicle while being used as a public conveyance for passengers or mails, or to any railroad car.

Indians: SEC. 13. In case Indians or other persons shall engage in the hunting or killing of game or fish in violation of this act, in such number as to be beyond the reasonable power of the commissioner or any chief warden to control, or in case of forcible resistance to the enforcement thereof, it shall be the duty of the sheriff of the county in which such violation exists, upon demand of the commissioner or any chief warden, to aid him in the enforcement of this act, and to call to his assistance at once a sufficient number of persons to enforce the same promptly and effectually, or, if by him deemed necessary, said commissioner or chief warden may call such assistance without the intervention of the sheriff. The failure, without good cause, of any person called to assist in such enforcement to respond and render such assistance shall be deemed a violation of this act.

Forest officers: SEC. 14. * * * Every officer having authority in relation to timber or timber reserves of the United States shall have the same authority under this act as a deputy warden.

Replevin: SEC. 15. The commissioner may, if he so elect, bring and maintain a civil action in the name of the people of the state for the possession of any game or fish taken, killed or held in violation of this act, or for the value thereof, against any person in possession or exercising control over the same, and if required by the commissioner, a writ of replevin shall issue therein without bond. No previous demand for possession shall be necessary. In case costs or damages are adjudged in favor of the defendant, the same shall be paid out of the game fund. Neither the pendency of such action nor of a criminal prosecution shall be a bar to the other, nor shall anything in this section affect the right of seizure under the other provisions of this act.

Prima facie evidence: Sec. 19. The possession at any time of game or fish unaccompanied by a proper and valid license, certificate, permit, or invoice, as herein provided, shall be prima facie evidence that such game or fish was unlawfully taken and is unlawfully held in possession, and it shall be the duty of every person having the possession or control of game or fish to produce the proper license, certificate, permit, or invoice, when one is required by this act, on demand of any officer, and to permit the same to be inspected and copied by him.

Corporations: Sec. 21. In case of a violation of this act by a corporation, the warrant of arrest may be read to the president, secretary or manager in this state, or any general or local agent thereof in the county where the action is pending, and upon the return of such warrant so served, the corporation shall be deemed in court and subject to the jurisdiction thereof, and any fine imposed may be collected by execution against the property of such corporation, but this section shall not be deemed to exempt any agent or employe from prosecution.

Division D.

Sale of confiscated game: Sec. 9. All game and fish seized under this act shall, without unnecessary delay, be sold by the officer seizing the same, or by the commissioner, except when a sale is impracticable or is likely to incur expenses exceeding the proceeds, in which case the same shall be donated to any needy person not concerned in the unlawful killing or possession thereof. * * * The proceeds thereof, after deducting the costs of seizure and sale, shall, if made by the commissioner or any warden, be paid into the state treasury, but if made by a sheriff or constable shall be paid, one-half to the commissioner and one-half into the treasury of the county where the seizure was made.

Division E.

Prima facie evidence: Sec. 2. The naming of game or fish upon any such menu as food for patrons shall be prima facie evidence of the possession of the same by the proprietor of such hotel, restaurant, cafe or boarding house.

Division F.

Destruction of appliances: Sec. 2. Every net, seine, trap, explosive, poisonous or stupefying substance or device used or intended for use in taking or killing game or fish in violation of this act * * * is hereby declared to be a public nuisance and may be abated and summarily destroyed by any person, and it shall be the duty of every officer authorized to enforce this act to seize and summarily destroy the same, and no prosecution or suit shall be maintained for such destruction. * * *

Division G. [Added by Laws of 1903, Chap. 112.]

Prima facie evidence: Sec. 10. The possession of protected game at any time in the field, shall be prima facie evidence that the party having such possession is engaged, or has been engaged, within the year in hunting the same.

Peace officers; Production of license: Sec. 11. The commissioner and every warden throughout the state and every sheriff and constable within his respective county, is authorized, and it shall be his duty, to arrest any person guilty of a violation of this division, and to demand of any person whom he has reason to believe is or has been engaged in hunting in this state, within the year, the immediate production of a proper license therefor, and an opportunity to inspect and copy the same, and it shall be the duty of every person required by this act to procure and have in possession such license, to so produce the same, and permit such inspection and copying.

DIVISION H. [ADDED BY LAWS OF 1903, CHAP. 112.]

Guides: SEC. 2. Every guide licensed under this act[a] shall, by virtue of such license, be entitled to act as a deputy warden, without pay, and when commissioned as such, shall have all the powers of a deputy warden, as provided in said act, and if he shall violate, or connive or assist in any violation of this act, his license and commission may be revoked by the commissioner, and he shall be disqualified to act as a guide during that year, and also be liable to punishment as for a violation of said act.

Guide's report: SEC. 3. Every guide shall, as often as requested and on blanks furnished by the commissioner, report under oath to the commissioner the names and number of persons guided by him, the number of days he has been so employed, and, as near as practicable, the number of game and fish taken or killed by such persons and himself, and such other information as the commissioner may deem desirable. * * *

DIVISION K. [ADDED BY LAWS OF 1903, CHAP. 112.]

Civil action: SEC. 3. The commissioner, or any warden, if he so elect, or any other officer charged with the enforcement of the laws relating to game and fish, if so directed by the commissioner, may bring a civil action in the name of the state against any person unlawfully wounding or killing, or unlawfully in possession of any game quadruped, bird or fish, and recover judgment for each such animal the following minimum sums as damages for the taking, killing or injury thereof to-wit: [Elk, sheep, $200; deer, $50; antelope, $100; buffalo, $1,000; bird, $10.] No verdict or judgment recovered by the state in such action shall be for a less sum than hereinbefore fixed, but may be for such greater sum as the evidence may show the value of the animal to have been when living and uninjured. Such action for damages may be joined with the action for possession now provided in said act, and recovery had for the possession and also the damages as aforesaid. All moneys collected under this section shall be immediately paid over by the justice or clerk of the court collecting the same, as follows: One-third into the treasury of the county where the offense was committed, one-third to the fish and game fund, and one-third to the person instituting the action: Provided, That if the person instituting the action shall fail for ten days after such collection, and due notice thereof, to demand the portion to which he is entitled, same shall be paid to the fish and game fund and the right of such person thereunder shall be deemed forfeited. The commissioner, any warden or officer instituting a prosecution shall be entitled to a share in the fine collected the same as any other person and shall be a personal perquisite for which he need not account. Neither the pendency nor determination of such action, nor payment of such judgment, nor the pendency nor determination of a criminal prosecution for the same taking, wounding, killing or possession shall be a bar to the other, nor affect the right of seizure under any other provision of the laws relating to game and fish.

Suspension of penalty: SEC. 4. No fine, penalty or judgment assessed or rendered under this act * * * shall be suspended, reduced or remitted otherwise than as expressly provided by law.

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[a] The guide's license is additional to the hunting license.

Publication of laws: Sec. 6. [Commissioner required to revise and publish in pamphlet form every two years, for general distribution, the fish and game laws, at a cost not to exceed $300. This pamphlet to be accepted in all courts as prima facie evidence of the existence of such laws, rules and regulations.]

Division L.

Imprisonment: Sec. 5. Every person convicted and fined under this act shall be imprisoned until the fine and costs are paid, and shall not be discharged therefrom on account of his inability to pay the same until he shall have been actually imprisoned one day for each $5 of the fine.

Prosecutions: Sec. 6. Prosecutions under this act may be commenced either by indictment, complaint or information, and district and county courts and justices of the peace in their respective counties shall have concurrent original jurisdiction of all offenses under this act, except those contemplated in section 3 of this division [protecting buffalo] of which justices of the peace shall not have jurisdiction otherwise than as committing magistrates.

Jury trial; Appeals: Sec. 7. The accused shall be entitled to a jury as in other criminal cases, and an appeal shall lie from a justice of the peace as in cases of assault and battery. Appeals from and writs of error to the district and county courts shall lie as in other criminal cases.

District attorney: Sec. 8. It shall be the duty of each district attorney to prosecute all violations of this act, occurring within his district, that may come to his knowledge, or when so requested by the commissioner or any officer charged with its enforcement, the same at all times to be subject to the supervision and control of the commissioner.

Exemption of witnesses: Sec. 9. In any prosecution under this act, any participant in a violation thereof, when so requested by the district attorney, commissioner, warden or other officer instituting the prosecution, may testify as a witness against any other person charged with violating the same, and his evidence so given shall not be used against him in any prosecution for such violation.

Fines: Sec. 10. All moneys collected for fines under this act shall be immediately paid over by the justice or clerk collecting the same, as follows: One-third into the treasury of the county where the offense was committed, one-third to the commissioner, and one-third to the person instituting the prosecution. * * * The commissioner, any warden or officer instituting a prosecution shall be entitled to a share in the fines collected the same as any other person, and it shall be a personal perquisite for which he need not account.

Report of trial: Sec. 11. It shall be the duty of every justice of the peace and clerk of a court before whom any prosecution under this act is commenced or shall go on appeal, and within twenty days after the trial or dismissal thereof, to report in writing the result thereof and the amount of fine collected, if any, and the disposition thereof to the commissioner at Denver.

Division M.

Costs: Sec. 4. When an arrest for a violation of this act is made by a sheriff or constable, the usual fees in a case of misdemeanor shall be taxed in his favor, and if not collected from the defendant, or if the defendant is acquitted, shall be paid by the county; and the necessary and ordinary fees and expenses of every posse lawfully summoned and engaged in the enforcement of this act shall be taxed as a part of the costs, and if not collected from some person liable therefor, shall be paid out of the state treasury in the same manner as is provided for the payment of the expenses of the commissioner.

Fees: Sec. 5. When an arrest for a violation of this act is made by the commissioner, or a warden, and the defendant is convicted, there shall be taxed as costs in favor of the officer making the arrest the same fees as a constable is entitled to in a case of misdemeanor, and if collected from the defendant, shall be paid over to such officer and shall be a personal perquisite for which he need not account, but no such fees shall be allowed in case of acquittal, nor shall the county or state be liable for such fees in any event.

Allowances under sale: Sec. 6. In case of a seizure and sale of game or fish taken or held in violation of this act, the officer making the same shall be entitled to the mileage allowed to a constable for serving a writ of replevin, and the reasonable cost of transporting the game or fish to the place of sale, and $3 per day for each day actually and necessarily spent in making the sale, which sums he may deduct from the proceeds of sale, but in no event shall the county or state be liable for any deficiency, and such fees when earned by the commissioner or a warden shall be a personal perquisite for which he need not account but when such fees are collected from the proceeds of sale no other expenses shall be allowed any officer on account of the seizure, transportation or sale.

Report of sale: Sec. 7. In all cases the officer making a seizure or sale shall, within ten days thereafter report all the particulars thereof and an itemized statement of the proceeds, expenses and fees and the disposition thereof, and pay the remainder of the proceeds, if any, to the commissioner.

Approved April 27, 1899.

CONNECTICUT.

Revised Statutes, 1902, chap. 189, p. 781.

Commissioners of fisheries and game: [Sec.] 3094. On or before May first, 1903, and biennially thereafter, the governor shall appoint three commissioners of fisheries and game, who shall serve for two years from the first day of July following their appointment, and until their successors are duly appointed, unless sooner removed by the governor.

Compensation: [Sec.] 4811. * * * There shall be paid * * * To each commissioner of fisheries and game, three dollars a day, also his actual expenses while officially employed, and a sum not exceeding two hundred dollars a year for the clerical expenses of the commission; * * *. (Chap. 284, p. 1152.)

Duties; Powers: [Sec.] 3095. The duties of the commissioners of fisheries and game shall be as follows: * * * the introduction, propagation, and distribution of such food fish and game as are adapted to the waters or lands of this state, and the appointment of fish and game wardens and inspectors as hereinafter provided. They shall cooperate with the United States fish commission and with the different fish and game commissioners of other states, and shall report to the governor on or before the first day of December next preceding the convening of the general assembly, giving a detailed statement of their receipts and expenditures. They shall enforce all laws relating to fish and game and shall perform such other duties as are or may be imposed upon them by law. For the purpose of enforcing the provisions of this title, each of the commissioners shall have the same power as grand jurors or prosecuting officers.

Wardens: [Sec.] 3096. On or before September first, 1903, and biennially thereafter, the commissioners of fisheries and game shall appoint one person in each county as a fish and game warden, who shall serve for two years from the date of his appointment.

Peace officers; Special protectors; Search: [Sec.] 3097. Fish and game wardens and other officers shall have the power, without warrant, within their respective precincts, to arrest for the violation of any law relating to fish and game. The fish and game warden for any county shall, within thirty days after his appointment, appoint not less than ten nor more than twenty special fish and game protectors for said county, to act under him, who shall hold office until removed by the warden appointing them or by his successor or by the commissioners of fisheries and game. Said warden may deputize another person to assist in detecting and arresting any person who may be violating any law relating to fish and game. Each warden shall take the oath of office and shall report to the commissioners of fisheries and game on the first days of January, April, July, and October in each year, and shall enforce all laws relating to fish and game. The warden for any county, his deputy, or any special protector, shall have free access, at all reasonable hours, to search, without such warrant, places or receptacles of any kind which said officers have reasonable ground to suspect are used for keeping, carrying, or covering game or fish taken or possessed contrary to law.

Powers of special protectors: [SEC.] 3099. Special protectors of fish and game shall have the same powers as other officers to arrest for the violation of any law relating to fish and game. They shall enforce all laws relating to fish and game, and each protector shall report to the warden appointing him as often as required by said warden.

Fees: [SEC.] 3100. In all prosecutions for the violations of any law for the protection of fish and game, the fish and game warden, his deputy, special protector, or other officer making the arrest, shall be entitled to a fee of twenty dollars in each and every case where conviction is had, which fee shall be taxed by the court as costs in the case against the defendant, and said fish and game warden, his deputy, special protector, or other officer shall be paid said sum; *provided*, that the court taxing the costs in any additional cases shall do so only as justice may require. Fish and game wardens and special protectors shall not receive any other fees for their services.

Scientific collecting, propagation, etc.: [SEC.] 3109. The commissioners, or any person duly authorized by them, may take fish, crustaceans, birds,[a] or animals, at any time and place and as they choose, for the purpose of science, cultivation, and dissemination.

Powers of justices of the peace: [SEC.] 3111. In all complaints for the violation of any law made for the propagation, preservation, or protection, of fish or game, the justice of the peace, before whom the same shall be tried, shall have jurisdiction and power to render judgment therein, and issue process of execution and mittimus thereon where such fine, forfeiture, or penalty, imposed, shall not exceed one hundred dollars, or imprisonment of more than thirty days, or both; but the defendant shall have the right to appeal as in other cases.

Revised Statutes, 1902, Chap. 191, p. 786.

Prima facie evidence: [SEC.] 3125. * * * The reception by any person or common carrier within this state, of any such bird or birds [quail, woodcock, and ruffed grouse] for shipment in an unmarked package or addressed to a point without the state shall be prima facie evidence that said bird or birds were killed within the state for the purpose of carrying the same beyond its limits.

Destruction of appliances: [SEC.] 3130. [Prohibits trapping protected birds.] Any such net, trap, snare, or similar device may be destroyed by any person.

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[a] Certificates for collecting nongame birds for scientific purposes are issued by the president of the board, upon endorsement of applicant for same by two well-known scientific men, payment of $1 fee, and execution of sufficient bond for compliance with the law.

Chap. 194, p. 798.

Preserves: [Sec.] 3197. The commissioners shall have power to establish state game preserves, and to that end may, in the name and for the use of the state, lease for the term of either twenty-five or fifty years, tracts of woodland in this state suitable for the propagation and preservation of game and game birds; said tracts shall contain not less than fifty and not more than three hundred acres, and shall during the term of said lease be and remain state game preserves.

Prima facie evidence: [Sec.] 3206. [Prohibits destruction of game on state game preserves.] The detection of any person with a gun, trap, or snare upon any state game preserve, during the open season, shall be presumptive evidence of a violation of this section. One-half of the fine imposed shall be paid to the informer.

Laws of 1903, chap. 101, p. 69.

Investigation of violations: The commissioners of fisheries and game may, in their discretion, authorize the fish and game warden of any county to investigate the violation of any fish and game law which has been committed or alleged to have been committed within his county, and the expenses incurred by the warden in such investigation shall be paid from the state treasury on an order from the commissioners of fisheries and game duly audited by the comptroller; provided, that the expenses so incurred shall not in any case exceed the sum of fifteen dollars.

Approved May 15, 1903.

Laws of 1907, chap. 153.

An Act concerning the Licensing of Hunters.

Fees: Sec. 3. [Resident, $1; nonresident, $10; alien, $15.]

Disposition of fees: Sec. 4. Every town, city, and borough clerk shall keep a record of all such licenses issued by him, which record shall be open to inspection by all officers authorized to make arrests, and by the state treasurer or his agents, and the commissioners of fisheries and game; and such clerk shall, on the first Monday in every month, pay to the state treasurer all moneys, except recording fees, received by him for such licenses issued during the month preceding. All moneys so received by the state treasurer shall be set apart as a fund to be used for the protection and propagation of game, and shall be paid, from time to time, to the commissioners of fisheries and game in the manner provided by section 3098 of the general statutes. Said commissioners shall use all moneys so received for the protection, preservation, and propagation of game in this state, and said commissioners are hereby authorized to receive and use said moneys in the manner and for the purposes hereinbefore provided; provided, however, that in case of a failure to convict in any prosecution for violation of the laws relating to birds and quadrupeds, or of this act, the costs of said prosecution shall be paid out of the fund created by this act.

Approved June 27, 1907.

DELAWARE.

Laws of 1879, vol. 16, chap. 111, p. 163.

An Act to incorporate the Delaware Game Protective Association.

Delaware Game Protective Association: Sec. 1. That I. N. Mills, * * * and their successors, are hereby constituted a body corporate by the name of the Delaware Game Protective Association, and to continue for the space of twenty years next ensuing.

Constitution, etc: Sec. 2. That the said corporation shall have the power to make and adopt a constitution and by-laws and regulations for the admission of its members; for the safe keeping of its property and funds, and from time to time to alter and repeal such constitution, by-laws and regulations.

Officers: SEC. 3. [The affairs of the association shall be managed by a president, secretary, three vice-presidents, and twenty-seven directors, nine of the directors to be chosen from each county. * * *]

Regulations: SEC. 6. [Nonresidents must comply with the regulations of the Game Protective Association before beginning to hunt and upon failure to do so shall be punished by fine of $50, one-half of the fine to go to the person prosecuting the offender and the other half to the Game Protective Association. Justices of the peace given jurisdiction to hear and determine offenses against this act.]

Membership dues: SEC. 7. The fee for membership in this society for nonresidents shall be five dollars for the first year, and for each succeeding year two dollars. For residents of this state, the membership fee shall be two dollars for each and every year: * * *

Certificate of membership: SEC. 8. That the secretary may admit persons to membership by letter or otherwise, upon payment of the membership fee, and shall issue to the person becoming a member of this society a certificate of membership, which shall hold good for one year from the date of the certificate.

Arrest without warrant: SEC. 9. That every member of this society shall be empowered to make arrests without warrant of any person or persons who may be found violating any of the provisions of this act or infringing upon any laws made for the protection of game and fish in this State, and bring him or them before a magistrate for examination.

Nonresident members: SEC. 10. That the secretary of this society shall, on or before the first day of July and the first of November of each and every year, furnish to each of the directors in the several counties named herein, twenty-five printed lists, containing the names of non-resident members of this society within [sic] their places of residence.

Nonresident members: SEC. 11. That it shall be the duty of the secretary of this association to leave at least two copies of the lists of non-resident members of the association at the times named in the foregoing section, with each Justice of the Peace in the several counties, and it shall be the duty of the Justices of the Peace to file one list of non-resident members with their records, and to publicly post the other list at their offices or places of business as soon as they may receive them.

Transferring certificate of membership: SEC. 12. [Prescribes penalty of $100 for transferring or giving away certificate of membership or using another person's certificate for purpose of killing or taking game.]

Stocking covers: SEC. 13. That whenever the funds of this society shall amount to three hundred dollars, the said directors, together with the President and Secretary, may, at such times as they think proper, employ an agent or agents to purchase game birds or fish to be placed at such points in the state as they may determine.

Nonresident fees: SEC. 14. That the funds obtained from non-residents for certificates of membership shall be used for no other purpose than to pay the legitimate expenses of the society, and for the purpose of stocking the State with game or fish, as the directors may from year to year determine.

Compensation: SEC. 15. There shall be no salaries attached to the offices of this association; but the directors may compensate the secretary, and pay such agents or employees as they may deem proper.

Public act: SEC. 16. This act shall be deemed and taken to be a public act, and the power to revoke the same is hereby reserved to the Legislature.

Passed March 28, 1879; renewed and extended perpetually March 25, 1899.

Laws of 1885, chap. 507.

Prima facie evidence: Sec. 5. [Prohibits use of swivel, punt, or other gun except one habitually fired from the shoulder, in killing ducks, geese and other wild fowl. Prohibits the hunting of such birds at night] and the possession of said birds, after the same have been killed, by any person having at the same time in his possession a swivel or punt gun, or being on the water in the night time with an artificial light, shall be deemed prima facie evidence that such birds have been killed by such person in violation of the provisions of this section.

Duty of justices of the peace: Sec. 11. That the justices of the peace in this state shall have plenary jurisdiction of all offenses against the provisions of this act, and upon affidavit made that a person has violated any of the provisions of this act, it shall be the duty of any justice of the peace in the county in which the offense was committed, or in any other county, where the person complained of has had or has in his or her possession any bird or animal named in this act, taken, killed, bought, sold, shipped or attempted to be shipped or transported in violation thereof, forthwith to issue his warrant, directed to the sheriff or in his absence to any constable, commanding him to arrest the person so charged and to bring him forthwith before such justice for trial; and if, upon such trial, the said justice shall find that the person arrested has violated any of the provisions of any section of this act, and such person shall fail to pay forthwith the fine imposed by said justice in accordance with the provisions of the section violated, together with the costs of prosecution, such person shall be committed by said justice to the custody of the sheriff for thirty days, unless said fine and costs be sooner paid. Any Justice of the Peace in this State, upon receiving proof of, or probable cause for believing in, the concealment of any birds or animals mentioned in this act, which have been taken, killed, bought, sold, shipped, or attempted to be shipped in violation of any of the provisions of this act, and upon the complainants giving security, to be approved by said Justice, for the damages which the person complained of may sustain in consequence of the complaint, provided he shall be found not to have violated the law, shall issue his search warrant and cause search to be made in any house, market, boat, car, or other building, and for that purpose may cause any apartment, chest, box, locker, crate or basket to be broken open and the contents examined.

Funds: Sec. 12. That all fines collected by any Justice of the Peace in this State under the provisions of this act, and the money paid to the Clerks of the Peace for the licenses [for shipping for profit] issued in accordance with the Provisions thereof, except the clerk's fees for issuing the same, shall be paid to the Secretary of the Delaware Game Protective Association, to be by him or by said Association used as prescribed in the act incorporating said Association, and for aiding in the detection and prosecution of offences against the provisions of this act.

Revised Code, 1893, chap. LV, p. 429.

Trespass; Confiscation: Sec. 16. If any person or persons shall enter upon any lands, not owned by himself, with gun and dog, or with gun alone, for the purpose of shooting any kind of birds or game without first obtaining permission to do so by the owner or occupant, he shall forfeit and pay a fine of five dollars; and if he shall not pay the said fine he shall forfeit his gun until redeemed, as hereinafter provided. The Justice of the Peace shall hold the said gun for thirty days, for the purpose of giving the owner time to redeem it by paying the fine imposed by law; at the expiration of said time it shall be publicly sold, and so much of the proceeds as is necessary shall be appropriated to the payment of said fine, and the balance to be returned to the owner of the gun. That all said fines shall be paid into the State Treasury.

Laws of 1901, chap. 216, p. 507.

An act for the protection of birds and their nests and eggs.

Nongame birds: Sec. 3. * * * That the Justices of the Peace in this State shall have plenary jurisdiction of all offenses against the provisions of this Act, and upon the affidavit made that a person has violated any of the provisions of this Act, to forwith issue his warrant, directed to the Sheriff or to any constable, commanding him to arrest the person so charged and to bring him or her forthwith before such Justice for trial, and if upon such trial the said Justice shall find that the person arrested has violated any of the provisions of any Section of this Act, and such person shall fail to pay forthwith the fine imposed by said Justice, together with costs of prosecution, such person shall be committed by said Justice for thirty days, unless said fine and costs be sooner paid. Any fines collected by any Justice of the Peace or constable of this State, under the provisions of this Act, shall be forthwith paid by him to the Treasurer of the Delaware Audubon Society.

DISTRICT OF COLUMBIA.

30 Statutes at Large, p. 1012.

Chap. 417. An Act For the protection of birds, preservation of game, and for the prevention of its sale during certain closed seasons in the District of Columbia.

Search: Sec. 5. That to carry out the provisions of this chapter any police officer, game warden having police authority, or health officer, in the District of Columbia, with sworn information presented to such officer or warden, is authorized and empowered to thoroughly inspect any house, boat, market box, stall, cold storage, or other place of whatever character or kind, where he may believe game, meats, or birds, as heretofore mentioned in this chapter, may be stored or kept; and any proprietor, agent, employee, or other person refusing to permit such inspection shall be deemed guilty of interference with the police, and upon conviction therefor, be fined not more than one hundred dollars nor less than twenty-five dollars, and, in default of such payment, to be imprisoned in the United States jail not exceeding six months.

Imported game: Sec. 8. That wherever in this Act possession of any birds, fowls, or meats is prohibited, the fact that the said birds, fowls, or meat were killed or captured outside the District of Columbia shall constitute no defense for such possession.

Fee: Sec. 9. That any officer or other person securing the conviction of any violator of any of the provisions of this Act, in the police court or other court of the District of Columbia, shall receive one-half of any fine which may be imposed and paid for such violation, and prosecution shall be brought in the name of the District of Columbia.

Approved March 3, 1899.

FLORIDA.

Laws of 1905, chap. 5435, p. 116.

Fish and Game wardens: Sec. 1. That there may be in any county of this State an officer whose title shall be Fish and Game Warden.[a]

Appointment; Removal: Sec. 2. That whenever a petition signed by seventy-five freeholders in any county in this State shall be presented to the Board of County Commissioners of such county praying that a Fish and Game Warden be appointed for such county, the county Commissioners shall enter upon their minutes the fact of the presentation of such petition and shall forthwith request the Governor of the State to appoint such officer, and shall recommend some suitable person resident of such county for the office. Upon such request and recommendation, the Governor shall appoint a Fish and Game Warden for such county, who shall hold the office for two years, and until his successor is appointed and qualified. Before entering upon the duties of such office, the person appointed thereto shall be required to enter into a bond with good and sufficient surety, or sureties, to the Governor of the State of Florida, in the sum of five hundred dollars, conditioned for the faithful performance of the duties of the office to which he has been appointed, such bond to be approved as are the bonds of other county officers. The Governor may at any time remove such officer for good cause; and it shall be the duty of the County Commissioners to report to the Governor any neglect of duty on the part of such officer, and the Governor shall investigate such charges, and if satisfied that they are well founded, shall cause suit to be instituted on the bond of such officer for the penalty.

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[a] County commissioners of Hillsborough County may appoint additional wardens for the county and fix their compensation, to be paid from county funds. Laws, 1903, chap. 5295.

Duties, Deputy wardens: SEC. 3. It shall be the duty of the Fish and Game Warden to see that the laws for the protection of fish, oysters and game in the county for which he is appointed are observed and obeyed and to make complaint to the proper judicial authority of the county for any infraction or violation thereof, and to see that the offender is prosecuted. The Warden may appoint Deputies in convenient localities in the county to assist him in the enforcement of the laws for the protection of fish and game.

Powers: SEC. 4. The Wardens and deputies shall have power to arrest and take before a magistrate, and subject to trial, according to law, any person violating any of the laws of the State for the protection and preservation of fish and game. And the magistrate may order the seizure of any of the implements used by the offenders in violation of such law.

Responsibility: SEC. 5. Any fish and game Warden, or his deputy, who shall fail to take cognizance and make complaint to a magistrate of the violation of any of the laws for the protection and preservation of fish and game in this State when the same is brought to his notice shall be punished by a fine not exceeding fifty dollars, and in default of payment, shall be imprisoned in the county jail for sixty days.

Peace officers: SEC. 6. In any county where no fish and game Warden has been appointed, the sheriff shall perform the duties of that office, provided, that nothing herein shall be construed to relieve the sheriff of counties where fish and game Wardens have been appointed from the duty of arresting and bringing to trial the violators of any law of the State for the protection and preservation of fish and game, but their duties in such cases shall be the same as in the case of violation of any other criminal law of the State.

Compensation: SEC. 7. The compensation of the fish and game Warden shall be prescribed by the County Commissioners of the county for which he is appointed, and shall be paid by such county. Provided; That in no case shall the amount paid exceed sixty dollars per month.

Approved May 20, 1905.

Laws of 1903, chap. 5293, p. 293.

AN ACT To Regulate the Hunting of Deer, Turkey, and other Wild Game in LaFayette County.

Arrest without warrant: SEC. 1. * * * Trials for violation of this act shall be before the county judge or justice of the peace; and the game wardens of such county are hereby authorized and required to arrest without warrant any person violating the provisions of this act and to take him forthwith before the nearest justice of the peace or county judge to be dealt with according to law.

Wardens for LaFayette County: Sec. 2. There shall be appointed by the Governor upon the passage of this act in said county of LaFayette two game wardens who shall hold office for four years or until their successors are appointed and qualified whose duty it shall be to see to it that the provisions of this act and any other game laws are complied with. * * * The amounts collected for the privilege of hunting in such county under the provisions of Section one shall go to and belong to the game warden collecting the same. * * *

Laws of 1903, chap. 5251, p. 244.

License fees: Sec. 6. [As amended by Laws of 1905, chap. 5427. Non-citizens required to procure license from the Clerk of the Circuit Court of the County in which they intend to hunt, fee $10.00.] That all money collected as provided for in this section shall be paid by the clerk to the county treasurer and shall be applied to paying the fees or salary of the game warden for said county; Provided, That in any county where there is no game warden, then all money collected as provided for in this section shall be paid by the clerk to the county treasurer for the use of the fine and forfeiture fund. * * * Provided, That the provisions of this act shall not apply to counties having special game laws.

Informers: Sec. 7. That any person making affidavit giving information sufficient to convict another for violating any of the provisions of this act shall be entitled to and shall receive one-half of the fine so imposed and collected, if informant be the game warden; any other shall receive one-third of such fine.

Laws of 1903, chap. 5295.

Hillsborough County: Sec. 1. [Authorized county commissioners to appoint a game warden for Hillsborough County.]

Laws of 1905, chap. 5576, p. 414.

AN ACT To Further Protect Wild Deer and Wild Turkeys in the County of Polk, and Provide a Game Warden Therefor.

Warden for Polk County: Sec. 3. The Governor shall upon the passage of this Act, and every two years thereafter, appoint some fit and proper person Game Warden for said County of Polk who shall have authority to enforce the game and fish laws of said State and the provisions of this Act in said County of Polk, and to appoint sufficient deputies for said purpose. Said Game Warden shall be entitled to one-half the fines and forfeitures arising from convictions of violators of the game and fish laws in said county.

Laws of 1907, chap. ——.

Warden for Hernando County: [The legislature of 1907 passed an act authorizing the appointment of a warden for Hernando County, but the text of the act was not available in time for incorporation in this bulletin.]

GEORGIA.[a]

Laws of 1903, No. 447, p. 102.

Prima facie evidence: Sec. 9. * * * That in all cases of arrests made for the violation of any of the provisions of this Act, the possession of game or fish or of the eggs of birds protected by this Act, shall be deemed and held to be prima facie evidence of the violation of the provisions of this Act.

Wardens; Deputy wardens: Sec. 10. Be it enacted by the authority aforesaid, That whenever fifty freeholders of any County shall, by petition so request, the Judge of the Superior Court shall appoint by order upon the minutes of the Court some citizen of said County who is a qualified voter thereof as Game Warden for said

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[a] Laws of 1907 not received.

County, which appointment shall be for two years or until his successor is appointed and qualified. [Warden must take the oath to perform his duties.] Said Warden may be removed from office at any time by the said Judge upon complaint being made and satisfactory proof submitted of failure to discharge his official duties. Said Warden shall appoint in each Militia District in the County for which he is Warden, a Deputy Warden, who shall be a qualified voter thereof, and who shall qualify in the same manner as the Game Warden. * * * Said Deputy shall be appointed for two years, but may be removed at any time by said Warden, said Deputy Warden shall be charged generally with the duty of enforcing the laws for the protection of game birds or animals, and such other birds as are protected by the laws of this State, and also the laws for the protection of fish. They are empowered to make arrests of all persons found in the act of violating said laws and to exercise the same ministerial duties as Sheriffs in the arrest of all persons charged by one with the violation of said law. Said Warden and Deputy shall receive the same costs and fees as Sheriffs of this State for similar service, in the arrest and trial of persons convicted under the provisions of this Act. And in addition thereto, one half of all fines imposed in such cases when paid by the defendant, provided the Warden shall satisfy the Judge trying the same that the detection or conviction in such cases is principally the result of official diligence on his part. All vacancies in the office of Warden shall be filled by the Judge of the Superior Court as provided in this Act, and vacancies for Deputy Warden by said Warden.

Charge to grand jury: Sec. 11. Be it further enacted by the authority aforesaid, That the Judges of the Superior Courts of this State be, and they are hereby required to give the provisions of this Act in special charge to the Grand Jury at each regular term of said Courts.

Approved August 17, 1903.

Laws of 1903, No. 346, p. 99.

Nongame birds; wardens; charge to grand jury: Sec. 8. Be it further enacted by the authority aforesaid, That the Judges of the Superior Courts of the several Counties of this State are authorized to appoint one or more Wardens whose duties it shall be to enforce the provisions of this Act, [for the protection of nongame birds] and who shall have the same power to make arrests for violation of this Act as the Sheriffs of this State, and that the compensation of such wardens shall be one half of the fines and forfeitures imposed by the Court and paid by the violators, the other half to be paid to the School fund of the County in which the arrests are made. The Judges of the Superior Court shall give the provisions of this Act in special charge to the Grand Jury at each regular term of the Court.

Approved August 15, 1903.

IDAHO.

Laws of 1905, page 257.

State Warden; Sec. 1. [As amended by Laws of 1907, p. 112.] The Governor shall appoint a suitable person to serve as State Fish and Game Warden, whose duty it shall be to protect the fish and game of this state, and to enforce the laws relating thereto. The State Fish and Game Warden shall hold his office for the term of two years or until his successor is appointed and qualified.

Before entering upon his duties the State Fish and Game Warden shall execute a bond to the State of Idaho in the penal sum of five thousand dollars ($5,000) conditioned for the faithful performance of his duties, and his bond shall be approved by the Governor. The Governor shall have power at any time to remove the State Fish and Game Warden, at pleasure, for misconduct or neglect of his duties, and the Governor shall be the exclusive judge of misconduct or neglect of duties and shall upon removal appoint a successor. The State Game Warden is hereby authorized to arrest without warrant, any person or persons found violating any of the provisions of the fish and game laws, when detected in the act, or found with fish or game in their possession, at the time of their arrest.

The State Fish and Game Warden shall be an active executive officer, and shall at all times take the field in person in the performance of his duties when possible. And shall personally supervise the protection of all game and fish protected under this act and be energetic in the detection and punishment of the violators of the fish and game laws, and shall make quarterly report to the Governor of the State of his doings under this act beginning with the first day of April and shall keep the Governor informed of his whereabouts, and shall make a biennial report to the Governor and Legislature of the doings and conditions of his office, which report shall be made during the first week of the regular session of the Legislature.

It shall be lawful for the State Fish and Game Warden, or any person appointed by him in writing so to do, to take fish and game of any kind, dead or alive, or in any manner, under the direction of the State Fish and Game Warden, for the purpose of inspection, cultivation, propagation, distribution, scientific or other purposes deemed by him to be in the interest of the fish and game industry of the State. He shall make a detailed report of his official transactions, including the number and kinds of fish distributed and the locality and names of streams, ponds or lakes where the same have been placed, and submit such report to the legislature during the first weeks of its ensuing regular session.

Deputy warden; Clerk: Sec. 2. [As amended by laws of 1907, p. 112.] The State Fish and Game Warden shall have power to appoint such deputies as are necessary, in the various counties of this State to properly enforce the laws; and he is hereby authorized to appoint one chief deputy and two assistants, and one or more deputies, as the emergency may demand, in any county of this State, whenever he shall receive from such county a petition signed by ten or more resident tax payers, asking for the appointment of such deputy game warden. And such chief deputy and assistants shall each execute a bond to the State of Idaho in the penal sum of $3,000.00, conditioned for the faithful performance of their duties, and such other deputy wardens shall execute a bond to the State of Idaho in the penal sum of $500.00, conditioned for the faithful performance of their duties, and they shall have the same power to make arrests as the State Fish and Game Warden. Their commissions may be revoked at any time by the State Fish and Game Warden. The State Fish and Game Warden shall file with the Governor a list of all deputy game wardens appointed by him. He shall have further power to appoint one clerk, who shall have charge of the office and perform the clerical duties thereof. Such clerk shall execute a bond to the State of Idaho in the penal sum of $3,000.00 conditioned for the faithful performance of his duties.

Production of license: Sec. 8. [As amended by laws of 1907, p. 112. Requires a licensee to produce his license for inspection by the State warden or any of his deputies upon request.]

Peace officers; Search; Arrest; Expenses: Sec. 12. It is hereby made the duty of the State fish and game warden and all deputies appointed under the provision of this act, and every sheriff, deputy sheriff, city marshal, constable and police officers within their respective jurisdictions in the State of Idaho, to enforce all the provisions of this act, and all laws for the protection of fish and game; and such sheriff, deputy sheriff, constable, city marshal, police officers and each of them by virtue of their election, or appointment, are hereby created and constituted ex officio fish and game wardens for their respective jurisdictions; and they and each of them and each and every fish and game warden appointed under the provisions of this act, shall have authority, and it shall be their duty, to inspect all depots, cars, warehouses, cold storage rooms, storerooms, hotels, restaurants, markets, and all packages and boxes held either for storage, shipment or sale which they shall have reason to believe contain evidence of the violation of this act, and each of said officers shall have power and is hereby authorized to search the tents, wagons, camps or packs of any person or persons in this State when they shall have good reason to believe that such person or persons have in their possession any game animals, birds or fish taken in violation of any of the provisions of this act, with or without a search warrant.

Any officer authorized to enforce the fish and game laws of this State shall have power, and it is hereby made his duty to arrest all persons violating any of the provisions of this act and cause such persons to be taken before the proper court for examination or trial as provided by law, either with or without a warrant.

All necessary expenses incurred in transporting and keeping a prisoner arrested under this act, shall be paid out of the State fish and game fund upon the sworn statement of the deputy warden making the arrest approved by the State game warden and if arrested by the State game warden upon his sworn statement.

Arrest without warrant: Sec. 15. It is hereby made the duty of the State game warden and his deputies to see that all the provisions of this act are enforced and are hereby given authority to arrest without a warrant any person or persons found violating the same.

Seizure: Sec. 18. [As amended by Laws of 1907, p. 112.] Any person who shall have in his possession any game, fish or birds taken unlawfully is guilty of a misdemeanor. * * *

Any game warden, sheriff, constable or other officer of the law may at any time seize and take into his custody any game or fish or any portion of the same, which he may find at any time in the possession of any person, company or corporation during the time the killing of such game or fish is not permitted by the laws of this State. * * *

Prosecution: Sec. 20. All actions brought for violation of the provisions of this act shall be in the name of the State of Idaho and shall be prosecuted by the county attorney for the county in which said action is commenced. And the justice of the peace or court trying such action shall, in all cases of conviction under this act, whenever any fine is imposed, order as part of the judgment of the court that the offender shall be committed to jail there to remain until said fine and costs are fully paid or otherwise legally destroyed.

License fees: Sec. 21. [License fees constitute part of the fish and game fund.]

Salaries of wardens: Sec. 23. [As amended by Laws of 1907, p. 112.] The State Fish and Game Warden shall receive as full compensation for salary the sum of eighteen hundred dollars ($1,800.00) per annum, and one thousand dollars ($1,000.00) per annum for traveling expenses. The chief deputy shall receive as compensation twelve hundred dollars ($1,200.00) per annum and shall be allowed actual and necessary traveling expenses not to exceed six hundred dollars ($600.00) per annum. And each assistant shall receive one thousand dollars ($1,000.00) per annum and actual and necessary traveling expenses not to exceed six hundred dollars ($600.00). The clerk to the State Fish and Game Warden shall receive a salary of one thousand dollars ($1,000.00) per annum as full compensation for his services. The State Fish and Game Warden, chief deputy and two assistants and the clerk shall be paid monthly on the first of each month out of the public treasury. And the chief deputy, two assistants and the clerk shall be paid upon their sworn statements, which accounts shall be approved by the State Game Warden. All other deputy wardens shall each receive as compensation the sum of three dollars ($3.00) per day for each day actually employed, but shall not be entitled to receive any traveling or other expenses, except when he is sent out of his district and such expenses shall be subject to approval by the State Game Warden, and shall not receive pay for more than one hundred and fifty days in one year; such compensation to be paid out of the public treasury upon the sworn account of the deputy, which account shall be approved by the State Fish and Game Warden, and forwarded to the State Auditor: *Provided*, That as soon as sufficient funds are accumulated in the State fish and game fund in the hands of the State Treasurer, the salary of the State Game Warden and the salaries of the deputy wardens and clerk shall be paid out of that fund.

Fines: SEC. 24. Upon the arrest and conviction of any person or persons for violating any of the provisions of the fish and game laws of this State the whole of the fine when collected shall be paid to the deputy fish and game warden on the first day of each month and shall on the 10th day of each month be remitted to the State fish and game warden and on the 15th day of each month be remitted by the State fish and game warden to the State Treasurer and shall by the State Treasurer, be placed to the credit of the State Fish and Game Fund.

Peace officers; Arrest: SEC. 25. Any fish and game warden appointed under the provisions of this act, and any sheriff, deputy sheriff, constable, city marshal, or police officer may without warrant arrest any person, by him found violating any of the provisions of this act, and take such person therefor before a justice of the peace, probate or municipal judge having jurisdiction, who shall without delay try and determine the matter and enter judgment according to the allegations and proof.

Neglect of duty: SEC. 26. Any officer, under the provisions of this act, whose duty it is to enforce this law shall be guilty of a misdemeanor who neglects or refuses to perform any of the duties required to be performed by him under any of the provisions of this act.

Appropriation: SEC. 28. [As amended by Laws of 1907, p. 112.] There is hereby appropriated all of the money now standing to the credit of the State fish and game fund and all moneys which may be received during the coming two years under the provisions of this act, for the purpose of paying the salaries of the various officers provided by this act, and for paying the traveling expenses provided for in this act and for the expenses of the office of the State Fish and Game Warden, and for the purpose of importing, propagating and protecting fish and game. * * *

ILLINOIS.

Laws of 1903, p. 206.

State game commissioner; Deputy wardens: [SEC.] 16. [As amended by Laws of 1907.] In order that the provisions of this act may be more fully carried out, the Governor of the State shall appoint one State Game Commissioner, whose term of office shall be for the period of incumbency of the Governor appointing him or until his successor is appointed, whose duty it shall be to secure the enforcement of all the statutes of the State for the preservation of game and birds, or bring or cause to be brought, actions and proceedings in the name of the People of the State of Illinois, to recover any and all fines and penalties provided for in such laws relating to game and birds, and to prosecute all violators of said statutes. The State Game Commissioner is empowered to appoint, by and with the approval of the Governor, sixteen game wardens, who shall have no other employment or business. They shall devote their entire time to the work of game protection, and shall travel over the State in all seasons for this purpose, under the direction of the State Game Commissioner. Such appointments shall be for efficient service only, and regardless of political influence. The State Game Commissioner is also authorized to appoint one or more (and not to exceed three) deputy game wardens for each county of the State, and as many special deputy game wardens as in his opinion is necessary for the proper enforcement of the law. They shall have authority with the State Game Commissioner in the enforcement of the game laws of the State, relative to game and birds throughout the State, and shall be immediately responsible to the State Game Commissioner and shall report to and receive their instructions from him. Such game wardens and deputy game wardens shall be subject to removal by the State Game Commissioner at any time.

Powers; Duties; Peace officers; Seizure: [Sec.] 17. Such State Game Commissioner, game warden, and their deputies shall have full power to execute and serve all warrants and processes of law issued by any justice of the peace or police magistrate, or by any court having jurisdiction under the law relating to the game in the same manner as any constable may serve and execute such process, and may arrest on sight and without warrant, any person detected by them actually violating any of the provisions of the laws of the State relating to game and birds, and may take such person so offending before any court having jurisdiction of the offense, and make proper complaint before such court, which shall proceed with the case in the manner and form provided by law for misdemeanor. It shall further be the duty of such State Game Commissioner, game wardens or their deputies, upon receiving any information that any law relative to game and birds has been violated, to immediately cause a thorough examination of such complaint to be made, and to cause proceedings to be instituted if the proof at hand warrants; and all sheriffs, deputy sheriffs, coroners and police officers of the State are hereby declared to be *ex officio* deputy game wardens and it shall be the duty of each and every one of them to assist the State Game Commissioner, game wardens and their deputies in the enforcement of the State game laws the same as it is their duty to assist in the enforcement of other laws, and such State Game Commissioner, game wardens and deputy game wardens shall seize on sight, without process, any game found in the possession of any person or corporation which is so in possession contrary to law.

Compensation; Expenses; Propagation: [Sec.] 18. [As amended by Laws of 1907.] Such State Game Commissioner shall receive a salary of twenty-five hundred dollars per year, and his actual expenses and disbursements while traveling in the line of his duties. He shall also be allowed such printing, stationery, postage, office rent, office furniture and supplies, clerical and other assistance, not to exceed ten employés, as is necessary to enable him to properly perform the duties of State Game Commissioner and carry out the provisions of this act. The game wardens provided for in this act shall receive nine hundred dollars per annum, payable monthly. In addition to the salary per annum provided for, such game wardens shall receive their actual and necessary expenses incurred while working under the direction of the State Game Commissioner. The deputy game wardens appointed for any county shall receive a per diem, when actually employed, not exceeding two dollars per day and necessary traveling expenses, to be fixed by the State Game Commissioner. Special game wardens appointed under this act shall serve without pay, except that they shall receive one-half of all fines recovered for violations of this act in cases where they have filed the complaint. The deputy game wardens shall also receive one-half of all fines recovered for violations of this act, in cases where they file the complaint; the remaining one-half of the fine to be paid into the State game protection fund. And in cases where the violator does not pay a fine, but is committed to jail, said deputy and special game wardens shall be reimbursed for their actual expenses; but such expenses shall not be paid in any case other than game cases or cases relating to license. Should the State game protection fund become exhausted during any year, the State Game Commissioner shall have the power and authority to suspend any number or all game wardens or deputies until such fund is again replenished. Should at any time a surplus accumulate in the State game protection fund, over and above the amount necessary for the operating expenses of the department, the State Game Commissioner shall have the power and authority to use such surplus for the purchase and propagation of quail, prairie chicken, pheasants and other game birds and animals, for the purpose of restocking sections of the State in which there exists a scarcity of the above mentioned game birds, and for exterminating crows and hawks. All moneys used for the payment of salaries, expenses and other disbursements mentioned in this section, including the salary of the State Game Commissioner, shall be taken from and charged to the State game protection fund, and the Auditor of Public Accounts is hereby authorized and directed to draw warrants for the same upon the presentation of proper vouchers certified to by the State Game Commissioner and approved by the Governor, and the State Treasurer shall pay the same out of the State game protection fund.

Search: [Sec.] 19. If said State Game Commissioner, game wardens and deputies, or either of them, has reason to believe, or does believe, that any person or corporation has in his or their possession, contrary to law, any game, deer, wild fowl or bird, it shall be the duty of such game commissioner, game wardens or deputies to go before any justice of the peace in the county and make affidavit to that fact; said justice shall thereupon issue a search warrant against the person or corporation so complained of, directed to any constable of the county, commanding him to proceed at once and search for said game, deer, wild fowl or bird, and upon finding the same to seize and take possession of the same and keep it until further ordered by the justice; said constable shall also read said warrant to the owner or person in whose possession said game, deer, wild fowl or bird is found. Said warrant shall be substantially as follows:

State of Illinois, } ss.
..........County, }

To any constable of said county, greeting:

You are hereby commanded to search (here describe place), seize and take possession of and hold any game, wild fowl or bird found there. And you (here name owner or person or corporation in whose possession game is found) are hereby notified to appear before me at my office in (here locate office) on (here state time of trial), and show cause why the game, deer, wild fowl or birds should not be sold and the proceeds thereof distributed, as required by law.

(Signature of Justice.)
Justice of the Peace.

(Date of warrant.)

Hearing: [Sec.] 20. At the time mentioned in said warrant said justice shall proceed to hear and determine whether said game, deer, wild fowl or bird was in the possession of the person or corporation contrary to law, and if said justice finds that said game, deer, wild fowl or bird was in the possession of the defendant contrary to law, then said justice shall enter judgment against the defendant and order a sale of the game, deer, wild fowl or bird seized; but if said justice shall find that the possession of said game, deer, wild fowl or bird was not contrary to law, then the judgment of the court shall be that the same be returned to the person or corporation from whom the same was taken.

Sale: [Sec.] 21. In case of a judgment and order of sale, as specified in section 20, the said constable shall at once post two notices, one at the justice's office and one at the place of sale, specifying in each notice the time and place of sale—not less than five hours from the date of judgment—also a description of the game, deer or wild fowl to be sold; said place of sale shall be upon the principal produce street or market of the city; said constable shall, at the time and place mentioned in said notices, sell said game, deer, wild fowl or bird at public auction to the highest bidder, for cash, and at once pay the proceeds of such sale into the justice's court; said constable shall give to the purchaser a certificate of purchase, in which shall be a particular description of the game sold, together with the date of sale.

Proceeds: [Sec.] 22. Said justice shall, as soon as the proceeds of sale are paid into his court, deduct the amount of his costs, together with the constable's costs, and distribute the balance as follows: One-half shall be paid to the game warden or deputy making the complaint, which shall be kept by him for his services, and one-half paid into the State treasury at once, for the benefit of the game protection fund.

Reports: [Sec.] 23. [As amended by Laws of 1905, p. 273.] Said State Game

Commissioner shall make an annual report to the Governor, which shall include the reports of the game wardens and deputy wardens, showing the number and kind of game, deer, wild fowl and birds seized, and what disposition was made of them, and the amount of proceeds of sale. Said reports shall also contain a statement of all moneys received from all sources and a statement of all disbursements of every kind.

Nonliability: [Sec.] 24. The State Game Commissioner, game wardens and deputy game wardens shall not be liable for any damage or costs sustained by any person or corporations by reason of the wrongful seizure of game, deer, wild fowl or birds under this act.

License fees; Action: [Sec.] 25. [As amended by Laws of 1907. Establishes resident and nonresident licenses, limits bag, and number of birds that may be exported under nonresident license.] The license fees above provided for shall be paid by the said clerk to the State Treasurer at the end of each month, and shall be placed to the credit of a fund to be known as the "State Game Protection Fund," and shall be disbursed by the State Treasurer on vouchers certified to by the State Game Commissioner and approved by the Governor, and filed with the Auditor of Public Accounts, who shall draw his warrant therefor on the State Treasurer. * * * And no person to whom a license has been issued shall be entitled to hunt, pursue or kill game or rabbits in this State without at the time of such hunting, pursuing and killing of game, he or she shall have such license in his or her name and upon his or her person, ready to exhibit the same for inspection, and such license shall be void after the first day of June next succeeding its issuance. * * * Any person found guilty of violating any of the provisions of this section shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not less than twenty-five dollars nor more than fifty dollars for each and every offense, and shall stand committed to the county jail until such fine and costs are paid, but such imprisonment shall not exeeed thirty days for each offense; or such person may be proceeded against in an action of debt in the name of the people of the State of Illinois, for the recovery of the penalty herein prescribed.

Forgery: [Sec.] 26. Any person who shall at any time alter or change in any material manner or loan or transfer to another, any license issued as aforesaid, shall be deemed guilty of forgery, and, on conviction thereof shall be subject to the penalties provided for the commission of forgery.

Prosecutions; State's attorneys; Peace officers; Fines: [Sec.] 27. All prosecutions for the violation of the provisions of the act relating to license shall be brought by any person, in the name of the people of the State of Illinois against any person or persons violating any of the provisions of this act, so far as it relates to licenses, before any court of competent jurisdiction; and it is hereby made the duty of all State's attorneys to see that the provisions of this act are enforced in their respective counties, and shall prosecute all offenders on receiving information of the violation of any of the provisions of this act; and it is made the duty of all sheriffs, deputy sheriffs, constables and police officers to inform against and prosecute all persons whom there is a reasonable cause to believe are guilty of violating any of the provisions of this act; one-half of the amount recovered in any penal action under this act, in so far as it relates to license, shall be paid to the person filing the complaint in such action, and the remaining one-half to the game protection fund; the moneys for such fund shall be by the magistrate or court before whom the case is tried, at once transmitted to the State Treasurer, and by him placed to the credit of said fund.

Hunting on another's lands: [Sec.] 29. Any person or persons violating section 28 of this act [prohibiting hunting on land of another without permission] shall be deemed guilty of a misdemeanor, and may be prosecuted in the name of the People of the State of Illinois, before any justice of the peace, or by indictment, or information in any court in the county where such misdemeanor was committed: *Provided*, That in all such prosecutions the owner, or owners or persons in possession of said grounds or lands, shall not be required to prove title to the grounds or lands in controversy.

Prima facie evidence: [Sec.] 7. [Exempts common carriers from liability for possession of game in close season when transporting it through the State.] But, notwithstanding this provision, the having or being in possession of any such animals, wild fowl or birds, as are mentioned in section one (1), upon any of the days upon which the killing, entrapping, ensnaring, netting, buying, selling or having in possession any such animals, wild fowl or birds, shall be unlawful by the provisions of this act, shall be deemed and taken as *prima facie* evidence that the same was ensnared, entrapped, netted or killed in violation of this act.

Prosecution; Fines: [Sec.] 8. All prosecutions under the provisions of this act, except as otherwise herein provided, shall be brought by any person, in the name of the People of the State of Illinois, against any person or persons violating any of the provisions of this act, before any justice of the peace of any county, in which such violation is alleged to have taken place (and said justice may, on proper evidence of guilt, bind said violator over to the grand jury), or before any court of competent jurisdiction; and it is hereby made the duty of the State's attorney to see that the provisions of this act are enforced in their respective counties, and they shall prosecute all offenders on receiving information of the violation of any of the provisions of this act; and it is made the duty of sheriffs, constables and police officers to inform against and prosecute all persons whom there is probable cause to believe are guilty of violating any of the provisions of this act. One-half of the amount recovered in any penal action under the provisions of this act shall be paid to the person filing the complaint in such action, and the remaining one-half to the game protection fund.

Limitation: [Sec.] 9. All prosecutions under this act shall be commenced within six months from the time such offense was committed and not afterwards.

Fines: [Sec.] 10. [As amended by Laws of 1907.] * * * The one-half of all fines imposed and collected under this act shall be paid to the informer, and the balance shall be paid to the game protection fund.

Approved April 28, 1903.

INDIANA.

Laws of 1899, Chap. XXXI, p. 44.

Commissioner: Sec. 1. Be it enacted by the General Assembly of the State of Indiana, That the Governor immediately after the taking effect of this Act, shall appoint a suitable person, who shall be a citizen of the State of Indiana, to discharge the duties hereinafter prescribed who shall be known as Commissioner of Fisheries and Game, and who shall hold his office for four years, subject to removal by the Governor for incompetency, or other cause that would render him an improper person to longer hold the office.

Duties; Powers; Deputies: Sec. 2. * * * Said Commissioner shall inquire into the best methods of preserving and propagating the game birds and song birds now in this State and shall introduce such varieties of food and game birds, foreign to the State, as may be deemed for the best interests of the people of the State. Said Commissioner may take or cause to be taken, any fish or game, in any manner and at any time, for purposes connected with fish or game culture, protection, preservation or propagation, or with scientific observation. Provided, That in all cases of scientific observation he shall require a permit from the Indiana Academy of Science. Said Commissioner shall also see that all laws for the protection of fish and game are enforced, and shall institute proceedings for the violation and punishment of any person or persons violating said laws within the State of Indiana, and shall have all the powers given to any Township Trustee or Road Supervisor for the enforcement of said fish or game laws, and shall have power to appoint a deputy or deputies in any county of the State for the purpose of aiding in the enforcement of such laws, who shall receive no other compensation than that provided in Section seven (7) of this Act.[a]

Arrest: SEC. 4. The said Commissioner and his deputies shall have the authority to arrest, without writ, rule, order or process any person in the act of committing or attempting to commit a crime or misdemeanor, in his presence, in violation of the fish and game laws of this State, and they are hereby made peace officers of this State for that purpose.

Bond: SEC. 5. [Commissioner required to give bond of $2,000 for faithful performance of duties and proper expenditure of moneys coming into his possession as Commissioner.]

Report: SEC. 6. Such Commissioner shall report the result of his investigations, experiments and labors to the next General Assembly succeeding his appointment, which report shall also embrace all necessary suggestions and recommendations that he may deem proper to increase the efficiency and value of fish and game culture to the citizens of this State.

Compensation, Prosecution: SEC. 7. That said Commissioner shall have and receive for his services the sum of $1,200.00 per annum, to be paid out of any money in the State Treasury, not otherwise appropriated, in quarterly instalments, on the warrant of the Auditor of State in the same manner and upon the same vouchers as other officers of the State are paid, and in addition thereto the sum of $1,200.00 per annum for traveling and office expenses, and the same shall be all the compensation that he shall be entitled to receive from the State, which sums shall be paid out of any money in the Treasury not otherwise appropriated, in quarterly instalments. Said Commissioner may have his appearance entered with a prosecuting attorney in any proceedings brought by said commissioner for the prosecution of any person for the violation of any law for the protection of fish, or game, and may be present in person or by deputy and assist said prosecuting attorney, * * *.

Approved February 13, 1899.

Laws of 1889, Chap. CCXXXIX, p. 449.

Road supervisors: SEC. 1. Be it enacted by the General Assembly of the State of Indiana, That it shall be the duty of the road supervisors to arrest or cause to be arrested and to prosecute or cause to be prosecuted, any or all persons violating any of the provisions of the acts, or any law heretofore or hereafter to be enacted, for the protection of game and fish. And, said road supervisors shall be allowed a fee of five dollars, to be taxed as costs against each person convicted of violating any of the provisions of said laws.

Penalty: SEC. 2. Any road supervisor who shall fail or refuse to discharge the duties of constables as aforesaid, and make or cause to be made said arrests, and prosecute or cause to be prosecuted all cases coming to his knowledge of violation of the game and fish laws of the state, shall, upon conviction, be fined in any sum not less than five nor more than twenty-five dollars.

Approved March 11, 1889.

Laws of 1901, Chap. CCIII, p. 442.

Deputies; Auditor's report: SEC. 15. * * * The Commissioner of Fisheries and Game shall be permitted to employ assistants or deputies, if the fund so provided is sufficient for that purpose; but no person or deputy so employed, aside from the chief deputy, shall be paid to exceed the sum of sixty dollars per month and actual expenses. On or before the 10th of each month the Auditor of State shall report to the Commissioner of Fisheries and Game the amount remaining unexpended in such fish and game protective fund on the last day of the preceding month.

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[a] See sec. 626, Laws of 1905.

Laws of 1905, chap. 169, p. 584.

An Act concerning public offenses.

Common carriers: Sec. 14. Prosecutions against any railroad company, express company, common carrier or person, for transporting game or birds in violation of law, may be had in any county where such game or birds shall have been received for transportation, or into which they may come for the purposes of, or during the course of, such transportation.

Prima facie evidence: Sec. 251. The possession by any railroad company, express company, common carrier or person, of any game or birds marked or labeled for any point beyond the limits of this state, or which shall be shown by any waybill, bill of lading or shipping book, to be intended for delivery at any place beyond the limits of this state, shall be prima facie evidence of the violation of the provisions of law with respect to the transportation of game or birds.

Each act separate offense: Sec. 594. * * * Each act of netting or trapping, or attempt to net or trap quail, or each day's possession of such net or trap, shall be deemed and held to be a separate and distinct offense and punishable as such.

Each day separate offense: Sec. 608. [Unlawful to hunt any game except waterfowl from Oct. 1 to Nov. 10], every day this section is violated shall constitute a separate offense.

Production of license: Sec. 609. [As amended by Laws of 1907, chap. 216. Requires residents to procure license to hunt; fees to be paid into fish and game protective fund]. Any person securing such license shall have the same in his possession when hunting, and shall show same to the commissioner of fisheries and game or his deputy, upon request. * * *

Fund: Sec. 611. [Requires nonresidents to procure license to hunt; fees to be paid into fish and game protective fund.]

Fund: Sec. 626. In all cases of conviction or on pleas of guilty of violating any of the provisions of this act in relation to fish or game, there shall be taxed against each defendant so convicted, in favor of the commissioner of fisheries and game, a fee of twenty dollars as a part of the costs. Said fees shall be paid by the officer collecting the same to the auditor of state every sixty days, on the first day of alternate months, in the manner in which license fees referred to in section 611 of this act are paid; and such fees shall be paid to the treasurer of state by the auditor of state as a part of the fish and game protective fund to be expended by the commissioner of fisheries and game in paying rewards and other expenses for the detection and conviction of persons who violate provisions of this act, and the fish and game laws of the state.

IOWA.

Code of 1897, Title XII, chap. 15, p. 884.

State fish and game warden; Compensation; Duties; Powers: Sec. 2539. [As amended by Laws 1898, chap. 64; and Laws of 1902, chap. 103.] There is hereby created the office of state fish and game warden. The warden shall be appointed by the governor, and hold his office for three years from the first day of April of the year of his appointment. He shall receive a salary of twelve hundred dollars annually to be paid out of the state treasury. He shall have charge and management of the state fish hatcheries, which shall be used in stocking the waters of the state with fish native to the country and to the extent of the means provided by the state. He shall impartially and equitably distribute all fry raised by or furnished to the state, or for it through other sources, in the streams and lakes of the state; shall faithfully and impartially enforce obedience of the provisions of this chapter, and shall make a biennial report to the governor of his doings, together with such information upon the subject of the culture of fish and the protection of game in the country as he may think proper, accompanied with an itemized statement monthly to the executive council under oath of all moneys expended and for what purposes, and of the number and varieties of fish distributed, and in what waters. It shall be the duty of the fish and game warden, sheriffs, constables, and police officers of this state to seize and take possession of any fish, birds, or animals which have been caught, taken, or killed at a time, in a manner, or for a purpose, or had in possession or under control, or have been shipped contrary to the provisions of this chapter. Such seizure may be made without a warrant. Any court having jurisdiction of the offense, upon receiving proof of probable cause for believing in the concealment of any fish, birds, or animals, caught, taken, killed, had in possession, under control, or shipped contrary to any of the provisions of this chapter, shall issue a search-warrant and cause a search to be made in any place therefor. Any fish, birds, or animals so found shall be sold for the purpose of paying the costs in the case, and the amount, if any, in excess of the costs shall be turned into the school fund of the county in which the seizure is made. Any net, seine, trap, contrivance, material, and substance whatever, while in use or had and maintained for the purpose of catching, taking, killing, trapping or deceiving any fish, birds, or animals contrary to any of the provisions of this chapter is hereby declared to be, and is, a public nuisance, and it shall be the duty of the fish and game warden, sheriffs, constables, and police officers of the state, without warrant or process, to take or seize any and all of the same, and abate and destroy any and all of the same without warrant or process and no liability shall be incurred to the owner or any other person for such seizure and destruction and said warden or his regularly constituted deputies or other peace officers as hereinbefore named shall be released from all liability to any person or persons whomsoever for any act done or committed or property seized or destroyed under or by virtue of this section.

Prima facie evidence: Sec. 2554. It shall be unlawful for any person, company or corporation to buy or sell, or have in possession, any of the birds or animals named in this chapter, during the period when the killing of such birds or animals is prohibited, except during the first five days of such prohibited period; and the possession by any person, company or corporation of any such birds or animals during such prohibited period, except during the first five days thereof, shall be presumptive evidence of a violation of the provisions of this chapter relating to game.

Prosecutions; Attorney General's opinion: Sec. 2559. [As amended by Laws of 1898, chap. 64.] In all prosecutions under this chapter, any number of violations may be included in the information, but each one shall be set out in a separate count, and upon conviction there shall be taxed as a part of the costs in the case a fee of five dollars to the informant, and a like fee of five dollars to the attorney prosecuting the case, upon each count upon which there is a plea or verdict of guilty and judgment of conviction; but in no event shall this fee be paid out of the county treasury. Prosecutions for violations of any provisions of this chapter may be brought either in the county in which the offence was committed, or in any other county where the person, company or corporation complained of has had or has in his or their possession any fish, birds or animals named herein and bought, sold, caught, taken, killed, trapped or ensnared in violation hereof. When requested by the fish and game warden the attorney general shall give his opinion, in writing, upon all questions of law pertaining to the office of such warden. Nothing in this chapter shall be construed as prohibiting any person from instituting legal proceedings for the enforcement of any provisions hereof.

Trespass: Sec. 2560. [Prohibits hunting on land of another without permission,] but no prosecution shall be commenced under this section except upon the information of the owner, occupant or agent of such cultivated or enclosed lands.

Deputies: Sec. 2562. The fish and game warden may appoint such number of deputies as he may deem necessary, who shall serve without expense to the state, and whose duties shall be to report to the warden all violations of the fish and game laws and aid him in the enforcement thereof.

Laws of 1900, chap. 86, p. 64.

Act to be enforced: SEC. 8. It shall be the duty of county attorneys and all peace officers to see that this act [requiring nonresidents to procure licenses and prescribing penalties therefor] is strictly enforced, the same as other game laws of the state.

Laws of 1900, chap. 87, p. 66.

Fund: SEC. 1. [Repealing Laws of 1900, chap. 86, sec. 6.] That all license money paid or collected under this act shall be credited by the county treasurer to a fund known as a game protection fund, to be used to defray the expenses of enforcing the law for the protection of game, such expenses to be allowed and ordered paid by the board of supervisors of the county.

KANSAS.

Laws of 1905, chap. 267, p. 411.

State fish and game warden; Term; Compensation: SEC. 1. Immediately after the taking effect of this act the governor shall appoint, and every four years thereafter, a state fish-and game-warden, who shall be a citizen of the state, who shall possess the requisite knowledge of the duties of a fish-and game-warden, and who shall hold his office for the term of four years or until his successor shall be appointed and qualified, and such fish and game warden shall receive a salary of fifteen hundred dollars per annum.

Propagation; Report: SEC. 2. The fish-and game-warden shall have the management of the state fish hatchery, shall carry out the provisions of law respecting the breeding and propagating of game and food fish and the distribution of young fish throughout the waters of the state, and shall enforce the fish and game laws of the state. * * * The fish and game warden shall make a biennial report to the governor, making such recommendations or suggestions as he may think best to protect the game and fish of this state and to replenish the streams and other waters with food-and game-fish.

Deputies: SEC. 3. The state fish-and game-warden shall, immediately after his appointment, appoint one or more deputy fish-and game-wardens in each county in this state where ten resident taxpayers request him to do so, whose duty it shall be to aid such state fish-and game-warden in carrying out the provisions of this act. Such deputy fish-and game-wardens shall receive no compensation for their services other than is provided in this act. The appointment of such deputies may by the fish-and game-warden be revoked at any time.

Powers; Fees: SEC. 4. The state fish-and game-warden and each of the deputy fish-and game-wardens shall have the power of a constable or police officer to arrest without warrant any person or persons by him or them caught in the act of violating any of the fish and game laws of this state, and with a warrant under other circumstances, and to bring such persons before the proper court for trial; and in each case of conviction there shall be assessed as part of the costs the sum of ten dollars for the person making such arrest, to be collected off the defendant, together with the mileage allowed by law to constables.

Production of license: SEC. 9. Every person holding a hunter's license taken out as aforesaid shall carry the same with him while hunting, and on demand by the fish-and game-warden, or any deputy fish-and game-warden, or any constable, marshal or other police officer charged with the enforcement of the provisions of this act, shall permit said license to be examined by the officer demanding the same. Failure to produce such license for examination shall immediately terminate said license.

Prosecution: SEC. 14. In a prosecution of any person or persons for a violation of any of the provisions of this act, it shall not be necessary to state in the complaint the true or ornithological name of the squirrel, bird or birds caught, killed, trapped, snared, sold, or offered for sale, shipped, or had in possession, nor to state the true or scientific name of the fish caught, taken or in any way killed in violation of the provisions of this act, nor to state in the complaint or to prove at the trial that the catching or killing or having in possession of any wild bird hereinbefore named, or that the catching of any fish, was not for the sole purpose of using or preserving it as a specimen for scientific purposes.

Prima facie evidence: Sec. 15. The having in possession by any person or persons, company or corporation of any bird named in section 7 of this act [partridge, grouse, prairie chicken, quail, plover, pheasant, duck, goose, brant, dove, oriole, meadow lark, robin, thrush, red bird, mocking bird, bluebird] at any time, except by a person who has lawfully killed the same, * * * shall be *prima facie* evidence of the violation of the provisions of this act.

Penalty; Separate offense: Sec. 17. Any person or the manager, agent or employee of any company or corporation found guilty of a violation of the provisions of this act shall, upon conviction thereof before any court of competent jurisdiction, be fined in the sum of not less than five dollars nor more than one hundred dollars for each and every offense, and shall be adjudged to pay the costs of the prosecution, and shall be committed to the jail of the county in which the offense was committed until such costs and fine are paid; provided, that the catching, taking or killing of each bird or fish caught, taken or killed in violation of the provisions of this act shall constitute a separate offense.

Peace officers; Nonliability: Sec. 18. It shall be the duty of all constables, marshals and police officers in this state to diligently inquire into and prosecute all violations of this act, or other fish or game laws of this state. Any such officers hereinbefore named, having knowledge or notice of any violation of the provisions of this act shall forthwith make complaint before some court of competent jurisdiction; provided, that such officer making complaint as aforesaid shall in no event be liable for costs unless it shall be found by the court or jury that the complaint was filed for malicious purposes and without probable cause; provided further, that any officer who shall neglect or refuse to prosecute any violator of the provisions of this act, upon proper information being laid before him, shall himself be deemed guilty of a misdemeanor, and upon conviction shall be punished as provided in section 17 of this act.

Special attorney: Sec. 19. That if any county attorney or other prosecuting officer shall neglect or refuse to prosecute any person or persons charged with a violation of any of the provisions of this act, any court, judge or justice of the peace having jurisdiction of the offense may appoint an attorney at law to prosecute such person or persons, and the attorney so prosecuting shall receive a fee of ten dollars, to be taxed to the defendant in every case where conviction shall be had.

Fund: Sec. 20. * * * All sums paid into the state treasury for licenses shall be credited to the state game- and fish-warden fund and become immediately available to carry out the provisions of this act.

Inspection: Sec. 21. It shall be the duty of the fish-and game-warden at reasonable intervals to inspect all places of the state where meat, fish and game is [are] kept for sale or shipment or stored for pay; and it shall be the duty of any person engaged in the business of buying, selling, shipping or storing for pay meat, fish or game within the state, upon the demand of the fish and game warden, to permit an inspection of their place of business by such warden; and any such person who shall refuse upon demand to permit the inspection herein provided for shall be deemed guilty of a misdemeanor, and, upon conviction thereof in any court of competent jurisdiction, shall be fined in the sum of not less than ten dollars and not more than fifty dollars for the first offense, and not less than fifty dollars nor more than one hundred dollars for each subsequent offense.

Approved Feb. 18, 1905.

Laws of 1903, chap. 320, p. 494.

Reward: Sec. 3. That a reward of twenty-five dollars be given to the person or persons giving information leading to the arrest and conviction of any person or persons violating this law [protecting antelope for 5 years].

Laws of 1907, chap. 218, p. 339.

[An act for protection of Hungarian partridges, English, Mongolian and Chinese pheasants for six years.]

Prima facie evidence: Sec. 2. The having in possession except for breeding purposes by any persons, company or corporation of any of the birds mentioned in section 1 of this act shall be deemed *prima facie* evidence of the violation of this act.

Approved Feb. 25, 1907.

KENTUCKY.

Barbour & Carroll's Statutes, 1894, chap. 57, p. 718.

Prima facie evidence: Sec. 1950. The possession of any of the animals or birds intended to be protected by this law within the periods for which their killing or pursuit is hereby prohibited, shall be prima facie evidence that the said animal or bird was unlawfully caught or killed and the possession thereof unlawful.

Separate offense: Sec. 1952. The unlawful killing, catching or possession of each and every one of the animals or birds intended to be protected by this law shall constitute a separate and distinct offense, and shall be punished accordingly, and two or more offenses may be joined in the same warrant or indictment therefor; and the person so offending, if convicted, shall be fined for each offense, and fifty per centum of said fine shall be paid to the informer.

Arrest; Search: Sec. 1953. Any county judge, justice of the peace, or police or other magistrate, upon receiving sufficient proof by affidavits that any of the provisions of this chapter have been violated by any person being temporarily within his jurisdiction, but not residing therein permanently, or by any person whose name or residence is unknown, is hereby authorized and required to issue his warrant for the arrest of such person, and cause him to be held to bail to answer the charges against him; and any such justice or magistrate, upon receiving proof or having reasonable grounds to believe that any game mentioned in this chapter is concealed during any of the periods for which the possession thereof is prohibited, shall issue his search warrant, and cause seach to be made in any house, market, boat, box, package, car or other place, and shall cause the arrest and trial of any person in whose possession such game is found.

Peace and other officers: Sec. 1954. It is hereby made the duty of the several mayors of the several cities and towns within the commonwealth to require their respective police or constabulary force, and it is hereby made their duty, as well as the duty of all market-masters or clerks of markets of any city or towns to diligently search out and arrest or have arrested, as for a misdemeanor, all persons violating the provisions of this chapter by having any game mentioned herein unlawfully in their possession, or offering the same for sale during any of the periods during which the killing of such game is prohibited. And any officer whose duty be to enforce the provisions of this chapter, who shall fail or refuse, upon sufficient information, to discharge the duties imposed upon him by this chapter, shall be held guilty of misfeasance in office, and shall, on conviction thereof, be punished by fine not less than twenty nor more than fifty dollars for each offense. * * *

Acts of 1904, chap. 68, p. 150.

Wardens: [Sec.] 1. The offices of fish and game wardens are hereby created.

Appointment: [Sec.] 2. The county judge of each county shall appoint one or more fish and game wardens for each county in the State, who shall hold office and be subject to removal therefrom at the pleasure of the county judge. Each game warden, before entering on the duty of his office shall execute his bond to the Commonwealth, with good surety, to be approved by the county judge.

Duties; Powers; Fees: [Sec.] 3. It shall be the duty of fish and game wardens to enforce within this State all laws relating to the protection, preservation and propagation of fish, birds and game. Each fish and game warden shall have full power to execute and serve all warrants and process of law issued for, in connection with or growing out of, the enforcement of any law relating to the protection, preservation or propagation of fish, birds and game in the same manner and to a like extent that any sheriff or constable may serve and execute such process, and shall be entitled to the same fees for said services as are now allowed by law to sheriffs for similar services in criminal cases. They may arrest on sight and without warrant any person detected by them in the act of violating any such law; they shall have the same right as sheriffs to require aid in executing any process or in arresting without process any person found by them in the act of violating any of said laws; and they shall have authority to seize without process any birds, fish or game then found in the possession of any such person, together with the guns, nets, seines, traps or other devices with which the same were taken or killed. and destroy or confiscate such guns, nets, seines, traps or other devices, and forthwith convey such offender before a court or magistrate, having jurisdiction of the offense, and such court or magistrate shall, upon the filing by the warden of a proper complaint, proceed speedily to try and determine the truth of the charge.

Fees: [Sec.] 4. After payment of the percentage of fines allowed by law to the other public officers, the remainder shall go to the fish and game warden instituting the prosecution, and upon filing a verified claim with the Auditor, he shall draw his warrant upon the Treasurer in favor of such fish and game warden.

Approved March 21, 1904.

Acts of 1904, chap. 107, p. 262.

Separate offense: [Sec.] 3. Each bird or fowl so bought, sold, offered for sale, had in possession for sale or transportation, received for transportation, or transported, contrary to the provisions of this act [prohibiting sale and transportation of wild turkey, pheasant, grouse, partridge and quail], shall constitute a separate offense.

Approved March 24, 1904.

LOUISIANA.

Acts of 1904, No. 126, p. 287.

Nonresident and alien hunting license: Sec. 13. [Establishes a $10 hunting license for nonresidents and unnaturalized foreign born residents, requires possession of such license while hunting, and production upon request of any officer.] Every non-resident and unnaturalized foreign born resident found hunting without the aforesaid license may be arrested on sight by any officer or warden * * *

Nonresident and alien market license: Sec. 14. [Establishes a $25 market-hunting license for nonresidents and unnaturalized foreign born residents, and requires production of the license upon request of any officer.] Every nonresident or unnaturalized foreign born resident hunting game birds for profit either to himself or others without said license, may be arrested on sight by any officer * * *

Fund: Sec. 16. * * * That all fees and fines collected under the provisions of this act, except as herein provided, shall go to a fund kept by the State Treasurer called the State game protective fund, of which the State Treasurer shall keep accurate accounts and report same to the Governor and General Assembly.

Game wardens: Sec. 17. Be it further enacted, etc., That it shall be the duty of the police juries of each parish of the State to appoint one or more reputable citizens to act as game wardens in that particular parish, and said officers shall have power and authority to arrest without warrant any person or persons found violating any of the provisions of this act, and to search without warrant any cold storage or refrigerating plant, car, vessel, vehicle, or package, wherein he or they may believe any birds named in the act may be kept or stored contrary to the provisions of the act. The said game wardens so appointed shall also have the right to confiscate all game birds which he or they may find in the possession of any person or persons during the close season, and this irrespective of the time when or place where such birds may have been killed or caught, and such person or persons shall have no redress at law for such seizure of property unlawfully had in possession.

Informer: Sec. 18. Be it further enacted, etc., That any person or persons reporting to the game wardens or other officers authorized under the law of the State to institute a prosecution against any person or persons, or corporations, for violations of the provisions of this act, shall receive for such report, in case of conviction 50 per cent of the fine collected from such person or persons, or corporations; the remainder of the said fine levied and collected shall go to the State game protective fund. Otherwise the whole fine collected shall go to said State game protective fund.

Approved July 5, 1904.

MAINE.

Revised Statutes, 1903, chap. 32, p. 351.

Commissioners ; Clerk : Sec. 34. The governor, with the advice and consent of the council, shall appoint three persons to be commissioners of inland fisheries and game, one of whom shall be the land agent of the state, and shall hold the office so long as he shall continue to be land agent; the other two commissioners shall hold their office for three years, and until their successors are appointed and qualified. Said commissioners shall be provided with an office in the state capitol, with suitable furniture, stationery and other facilities for the transaction of the business of the department, and they may appoint a clerk.

Laws of 1905, chap. 84.

Chairman : Sec. 1. The governor with the advice and consent of the council shall appoint one of the commissioners of inland fisheries and game to be the chairman thereof, and he shall be designated and commissioned as such for the term of two years. After the expiration of the first term a chairman shall be appointed in the manner and for the term now prescribed by law for the appointment of any one of said commissioners ; but the land agent shall not be eligible to the office of chairman.

Compensation ; Allowances : Sec. 2. The chairman of the commissioners of inland fisheries and game shall receive an annual salary of two thousand dollars ; the land agent, forest commissioner and member of the commissioners of inland fisheries and game, combining the three offices in one appointee, two thousand dollars; the other member of the commissioners of inland fisheries and game, one thousand dollars, and in addition to their salaries, actual traveling expenses to be audited by the governor and council. The salary of the clerk of the commissioners of inland fisheries and game shall be seven hundred and fifty dollars, and the salary of the clerk to the land agent and forest commissioner shall be one thousand dollars. The governor and council may allow such sum as may be necessary for extra clerk hire, to be paid out of license fees.

Quarterly payment: Sec. 3. Said salaries are payable quarterly, on the first days of January, April, July and October of each year, from the state treasury, and are in full for all services performed by them in their official capacities.

Approved March 17, 1905.

Revised Statutes, 1903, chap. 32, p. 351.

Duties: SEC. 35. The commissioners of inland fisheries and game shall * * * introduce and disseminate * * * valuable food birds into the state. They shall examine into the workings of the inland fish and game laws, see that all violations thereof are duly prosecuted, and perform all other duties prescribed by law. * * * They shall, on or before the thirty-first day of December of each year, report to the governor, who shall cause three thousand copies of said report to be printed.

Powers: SEC. 36. The commissioners of inland fisheries and game, upon petition of five or more citizens of the state, or whenever they shall deem it for the best interests of the state, after due notice and public hearing in the locality to be affected, may regulate the times and places in which and the circumstances under which game and inland fish may be taken; but they cannot authorize the taking of game or inland fish at a time in which its capture is prohibited by the laws of the state, and in all cases where the prayer of the petitioners is refused, one-half of the expenses of the commissioners shall be paid by the petitioners. Whenever they deem it for the best interests of the state, after like notice and hearing, they may entirely prohibit the taking of any kind of game or inland fish, in any part of the state, for a series of years not exceeding four. They may adopt and, from time to time, modify or repeal such needful rules and regulations, not contrary to the laws of the state, as they may deem necessary or proper for the protection and preservation of the game and inland fish of the state, in conformity with the provisions of the last two preceding sections. They shall file, in the offices of the clerks of the towns in the territory to be affected, a copy of the rules and regulations adopted by them, and publish the same three weeks successively in a newspaper printed in the county, and post on the banks of waters to be affected, as nearly as may be, like notices; and whenever any such rules or regulations apply to any unorganized township, a like copy shall be filed with the clerk of courts for that county, and published three weeks successively in a newspaper printed in the county; they shall, immediately upon the adoption of any rules and regulations contemplated by this section, file an attested copy of the same in the office of the secretary of state.

Regulations: SEC. 38. Whoever, at any time or in any manner, hunts, chases, catches, kills, takes, has in possession or destroys any inland game, in violation of any of the rules and regulations of the commissioners of inland fisheries and game, made and promulgated in conformity with the provisions of this chapter, shall be punished in the same manner and to the same extent as is provided for by law for the illegal hunting, chasing, catching, killing, taking, having in possession or destroying of any such inland game.

Mutilating notices: SEC. 39. Whoever wilfully mutilates, defaces or destroys any notice, rule or regulation of the commissioners of inland fisheries and game, posted in conformity with the provisions of this chapter, shall be punished by a fine not exceeding fifty dollars, to be recovered by complaint or indictment; and one-half of said fine shall be paid to the prosecutor.

Propagation, etc.: SEC. 40. The commissioners of inland fisheries and game, for their department, * * * may take fish and game of any kind when, where, and in such manner, as they choose, for the purposes of science and of cultivation and dissemination, and may grant written permits to other persons to take fish and game for the same purposes, and may introduce or permit to be introduced, any kind of fish into any waters. * * * The commissioners of inland fisheries and game may grant permission to take moose, caribou, deer and birds for park purposes in the state, under such rules, regulations and conditions as they shall establish. * * *

Wardens: SEC. 49. The governor with the advice and consent of the council, upon the recommendation of the commissioners of inland fisheries and game, may appoint suitable persons as fish and game wardens, who shall hold office for a term of three years unless sooner removed, and who shall enforce all laws relating to inland fisheries and game, and all rules and regulations in relation thereto, arrest all violators thereof, and prosecute all offenses against the same; said wardens [who are required to give bond of $2,000] shall have the same power to serve criminal processes against such offenders, and shall be allowed the same fees as sheriffs, for like services, and they shall have the same right as sheriffs to require aid in executing the duties of their office. * * * Inland fish and game wardens may serve all processes per taining to the collection of penalties for violation of inland fish and game laws; fish wardens may be appointed inland fish and game wardens and need not give additional bond.

Deputy wardens: Sec. 50. The commissioners of inland fisheries and game may appoint deputy wardens for whose official misconduct and neglect they shall be responsible and may revoke such appointments at any time. The appointment and discharge of such deputy wardens shall be in writing, and they shall have the same powers and be subject to the same laws, as wardens appointed by the governor and council.

Peace officers: Sec. 51. Sheriffs, deputy sheriffs, police officers and constables, are vested with the powers of inland fish and game wardens and their deputies, and shall receive for like services the same fees.

Arrest; Seizure; Search: Sec. 52. [As amended by Laws of 1905, chap. 141.] The commissioners and every warden throughout the state shall enforce the provisions of this chapter [relating to fish and game], and shall seize any game, fish or game birds taken or held in violation of this chapter; and every such officer may arrest, with or without a warrant, any person whom he has reason to believe guilty of a violation thereof, and with or without a warrant, may open, enter and examine all buildings, camps, vessels, boats, wagons, cars, stages, tents, and other receptacles and places and examine all boxes, barrels and packages where he has reason to believe that game, fish or game birds taken or held in violation of this chapter are to be found, and seize such game, fish or game birds if any be found therein, but no dwelling-house shall be searched for the above purposes without a warrant and then only in the day time, and no sealed railroad car shall be entered for the above purposes without such warrant. Any magistrate may issue warrants to search, within his jurisdiction, any dwelling-house, in the day time, or any other place at any time, for the purposes above set forth, to any commissioner of inland fisheries and game or any warden, sheriff or any of his deputies; such warrant shall be issued subject to the requirements of section thirteen of chapter one hundred and thirty-three of the revised statutes; provided, however, that the commissioners shall, on or before October first of each year in writing, notify the superintendents of all transportation companies doing business within the state of the names of the wardens by them designated to exercise the right of search as herein provided, which number shall not exceed four for any one transportation company, and no others shall, except those so designated, be authorized to exercise the powers herein mentioned as to search.

Form of action: Sec. 53. Any officer authorized to enforce the inland fish and game laws may recover the penalties for the violation thereof in an action on the case in his own name, the venue to be as in other civil actions, or by complaint or indictment in the name of the state; and such prosecution may be commenced in the county in which the offense was committed, or in any adjoining county, and the plaintiff prevailing shall recover full costs without regard to the amount recovered.

Jurisdiction; Malicious arrest: Sec. 54. Any officer authorized to enforce the inland fish and game laws may, without process, arrest any violator of any of said laws, and shall with reasonable diligence, cause him to be taken before any trial justice or any municipal or police court, in the county where the offense was committed, or in any adjoining county, for a warrant and trial. Jurisdiction in such cases is hereby granted to all trial justices and all other courts to be exercised in the same manner as if the offense had been committed in that county; and any officer who shall maliciously, or without probable cause, abuse his power in such proceedings shall be liable upon complaint or indictment, to a fine not exceeding one hundred dollars, or imprisonment not exceeding three months.

Jurisdiction: Sec. 55. In all prosecutions under this chapter, municipal and police judges and trial justices within their counties have, upon complaint, original and concurrent jurisdiction with the supreme judicial and superior courts.[a]

Fund: Sec. 56. * * * all fines and penalties recovered, or money paid, under any of the provisions of this chapter, after deducting legal taxable costs, shall be paid forthwith to the treasurer of state by the person recovering the same; and all money so received by said treasurer shall be expended by the commissioners of inland fisheries and game for the protection of the fish and game of the state.

Corporation: Sec. 57. In case of a violation of any of the provisions of this chapter by a corporation, the warrant of arrest may be served by an attested copy on the president, secretary, manager or any general agent thereof in the county where the action is pending, and upon return of such warrant so served, the corporation shall be deemed in court and subject to the jurisdiction thereof, and any fine imposed may be collected by execution against the property of such corporation; but this section shall not be deemed to exempt any agent or employe from prosecution.

County attorneys; Witnesses; Reports: Sec. 59. Each county attorney shall prosecute all violations of this chapter occurring within his county, when such cases may come to his knowledge, or when he may be so requested by the commissioners or any officer charged with its enforcement, the same at all times to be subject to the supervision and control of the commissioners. In any prosecution under this chapter, any participant in a violation thereof, when so requested by the county attorney, commissioners or other officer instituting the prosecution, may be compelled to testify as a witness against any other person charged with violating the same, but his evidence so given shall not be used against himself in any prosecution for such violation. Every magistrate or clerk of the court before whom any prosecution under this chapter is commenced, or shall go on appeal, within twenty days after the trial or dismissal thereof, shall report in writing the result thereof and the amount and disposition of the fines collected to the commissioners at Augusta. In all cases, the officer making the seizure or sale of fish, game or birds shall within ten days thereafter, report all the particulars thereof and an itemized statement of the proceeds, expenses and fees, and the disposition thereof to the commissioners at Augusta. Every warden shall, in the month of December of each year, and at such other times as the commissioners may require, report to the commissioners all violations of and prosecutions under this chapter, occurring in his district, together with such further information as the commissioners may require. The failure of any person or officer to perform any act, duty or obligation enjoined upon him by this chapter shall be deemed a violation thereof.

Permit; Prima facie evidence: Sec. 5. Whoever introduces * * * wild birds or wild animals of any kind or species, into the state except upon written permission of the commissioners of inland fisheries and game, shall forfeit not less than fifty, nor more than five hundred dollars. Possession of any jack-light, * * * in any camp, lodge or place of resort for hunters or fishermen, in the inland territory of the state, shall be prima facie evidence that the same is kept for unlawful use; and they may be seized by any officer authorized to enforce the inland fish and game laws. * * *

Fund; Damage by deer: Sec. 22 [As amended by Laws of 1905, chap. 132. Establishes nonresident licenses to hunt game, fees $5–$15.] All money received for such licenses shall be forthwith paid to the treasurer of state, and may be expended by the commissioners in the protection of moose and deer, under the direction of the governor and council; *provided, however*, that the commissioners of inland fisheries and game may adjust and pay, from funds received for such licenses, for actual damage done to growing crops by deer; * * *

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[a] State *v.* Craig (Me.), 13 Atl., 129.

Prima facie evidence: Sec. 25. [Prohibits transportation of moose and deer in close season, and in open season unless properly tagged] and it shall be prima facie evidence that said game being transported or carried in violation of this section was illegally killed; * * *

Seizure of game: Sec. 26. All birds, fish and game hunted, caught, killed, destroyed, bought, carried, transported or found in possession of any person or corporation, in violation of the provisions of this chapter, shall be liable to seizure; and in case of conviction for such violation, such game shall be forfeited to the state, to be sold for consumption in the state only. Any person whose game or fish has been seized for violation of any game or fish law shall have it returned to him on giving to the officer a bond with sufficient sureties, residents of the state, in double the amount of the fine for such violation, on condition that, if convicted of such violation, he will, within thirty days thereafter, pay such fine and costs. If he neglects or refuses to give such bond and take the game or fish so seized, he shall have no action against the officer for such seizure, or for the loss of the game or fish seized.

Guides' reports: Sec. 32. [Requires guides to procure certificate from commissioners of inland fisheries and game.] Each registered guide shall, from time to time, as often as requested by the commissioners, forward, on blanks furnished him by the commissioners, a statement of the number of persons he has guided in inland fishing and forest hunting during the time called for in said statement, the number of days he has been employed as a guide, and such other useful information relative to inland fish and game, forest fires and the preservation of the forests in the localities where he has guided, as the commissioners may deem of importance to the state, under a penalty of fifty dollars for unreasonably or willfully refusing to comply with these requirements.

Laws of 1907, chap. 118, p. 132.

Alien licenses: Sec. 1. [Requires unnaturalized foreign-born persons who have not resided in the State for 2 years prior to passage of this act and who are not tax payers to procure a license before hunting.]

Fee; Production of license; Disposition of funds: Sec. 2. [Licenses issued by commissioners of fisheries and game, fee $15.] Said licenses shall not be transferable and shall be exhibited upon demand to any of the commissioners of inland fisheries and game, and to any game warden or deputy game warden, and to any sheriff, constable, police officer or other officer qualified to serve process. The fees received from said licenses shall annually be paid into the State treasury and expended by the commissioners of inland fisheries and game for the protection of game and birds.

Prima facie evidence; Seizure and disposition of firearms: Sec. 3. If any firearm or firearms are found in the possession of any foreign-born unnaturalized person required to be licensed under the provisions of this act, when he is upon the wild lands or woods of the State, not having a license as herein provided, it shall be prima facie evidence that such person is hunting in violation of the provisions of this act and he shall be subject to a penalty of twenty-five dollars and costs for each offense, and a further penalty of forfeiture to the State of all firearms found in his possession in violation of this section, and any person authorized to enforce the inland fish and game laws is authorized to seize all firearms found in possession in violation of the provisions of this section, and shall forthwith forward them to the commissioners at Augusta, and upon conviction of the person or persons from whom they were seized shall sell them, the proceeds from such sale to be paid to the treasurer of state and expended by the commissioners of inland fisheries and game for the protection of fish and game.

MARYLAND.

Public General Laws, 1904, Vol. II, Art. XCIX, p. 2103.

Game warden; Compensation: [SEC.] 35. The Governor of this State on the tenth day of April, 1896, and every two years thereafter shall appoint a game warden for the State whose term of office shall be for two years or until his successor be appointed. The said game warden shall receive a salary from the State for his services of twelve hundred dollars per annum, and shall be entitled to an expense account for actual traveling expenses, and other expenses incurred in the discharge of his duties, to an amount not to exceed in any one year the sum of six hundred dollars, and shall receive a portion of the fines arising from the violation of the game and fish laws when the offenders shall be prosecuted by said game warden or his deputy game wardens, as hereinafter provided. The said game warden may be removed by the Governor of this State at any time upon proof satisfactory to him that said game warden is not vigorously enforcing the game or fish laws of this State, or is not a fit person for said position. * * *

Duties: [SEC.] 36. It shall be the duty of the said game warden and his deputy game wardens to prosecute all persons and corporations having in their possession any game or fish contrary to either the general or local game or fish laws of this State. It shall also be their duty to see that the game and fish laws are enforced and obtain information as to all violations of the said game and fish laws.

Deputies; Compensation: [SEC.] 37. Whenever the game warden considers that it is necessary that he should have deputy game wardens appointed to assist him in more efficiently enforcing the game and fish laws of this State, he may apply to the governor to commission such persons as he may designate to act as deputy game wardens in the counties and cities of the State, to enforce the game and fish laws of this State, and carry out all the provisions of this subtitle; such persons may be appointed for the whole State or for such counties or cities as the governor in his commission shall designate. If the governor approve such persons he may appoint them deputy game wardens; such deputy game wardens shall not receive a salary from the State, cities or counties, but shall be paid such compensation out of the fines collected or otherwise, as the game warden may agree with them.

Commission: [SEC.] 38. The governor shall issue to each person so appointed as deputy game warden a commission, and transmit such commission to the clerk's office of the circuit court for the county in which the deputy game warden so appointed has his legal residence, or to the office of the clerk of the superior court of Baltimore city, if residing in Baltimore city, and he may revoke and annul any such appointment at his pleasure.

Duties and powers of deputies: [SEC.] 39. [Deputy wardens required to take oath of office.] The game warden throughout the State, and also every deputy game warden so appointed, after the recording of the oath or affirmation to be by said game warden or deputy game wardens taken as aforesaid, shall, in the county, counties, city or cities for which such deputy game warden may be appointed, possess and exercise all the authority and powers held or exercised by constables at common law and under the statutes of this State, and also all authorities and powers conferred by law upon policemen in the City of Baltimore or other cities of the State, as far as arresting and prosecuting the persons for violating any of the fish and game laws of this State are concerned; and they are hereby vested with additional power to arrest without warrants persons suspected or known to be guilty of violating any of the provisions of the game and fish laws of this State, and to forthwith take any and all such persons before the nearest justice of the peace to be dealt with in accordance with the provisions of the game and fish laws of this State. In the event of finding game or fish taken or had in possession contrary to the provisions of any of the game or fish laws of this State, upon the persons so dealt with, they shall proceed in the manner prescribed in Sections 43, 44, 45 and 46. * * *

Warden's badge: [SEC.] 40. The game warden and deputy game warden shall, when acting in his official capacity, except when on detective duty, wear in plain view a metallic shield with the words "Game Warden" or "Deputy Game Warden," as the case may be, inscribed thereon. * * *

Dismissal: [SEC.] 41. Whenever the services of any deputy game warden shall no longer be required by the game warden, the game warden shall give a notice in writing to this effect to said deputy game warden, and shall file the same in the office of the clerk where the oath of office of such deputy game warden shall be recorded, which notice shall be noted by the clerk upon the margin of the record where such oath or affirmation is recorded, and thereafter the power of this deputy game warden shall cease and determine, and a copy of such notice shall be immediately served on such deputy game warden by the game warden and such service shall be by registered letter to the U. S. mails or by the sheriff of the county in which the commission of the said deputy game warden so removed shall be recorded.

Disposition of fines: [SEC.] 42. In all cases in which prosecutions for violations of any of the general or local game or fish laws of this State shall be instituted by the game warden or any deputy game warden, and shall result in the collection of a fine or fines, then all of such fine or fines, after the proper court costs or costs of the justice of the peace in convicting such offenders shall have been paid, shall be paid to the game warden as his compensation. And all public and local game and fish laws heretofore enacted are hereby so amended as to make the fines therein provided payable to the game warden according to the terms of this section. This section shall not prevent the collection of any portion of such fines given by law to the informer by any person not a game warden or deputy game warden procuring the conviction of any person violating the game and fish laws.

Search warrant: [SEC.] 43. If the game warden or any deputy game warden has reason to believe that any person or corporation has in his or its possession, contrary to law, any game as defined by section 35, [deer, wild turkey, pinnated grouse, ruffled grouse or pheasants, Mongolian and English pheasants, woodcock, partridge or quail, rabbits, squirrels, ducks, geese, and all other species of wild fowl] or fish, it shall be the duty of the game warden or such deputy game warden to go before any justice of the peace in the county or city in which the game or fish may be, and make affidavit of that fact; said justice shall thereupon issue a search warrant against the person or corporation so complained of, directed to any constable of the said county or city, commanding him to proceed at once and search for said game or fish and, upon finding the same, to seize and take possession of the same and keep it until further order by the justice. The said constable shall read said warrant to the owner or person in whose possession said game or fish is supposed to be. Said warrant shall be returnable within not less than twelve hours nor more than twenty-four hours from the date thereof.

Proceedings: [SEC.] 44. At the time mentioned in said warrant, said justice shall proceed to hear and determine whether said game or fish was in the possession of the person or corporation contrary to law; and if the said justice shall find that said game or fish was in the possession of the defendant contrary to law, then said justice shall enter judgment against the defendant and order sale of the game or fish so seized; but if the said justice shall find that the possession of such game or fish was not contrary to law, then the judgment shall be that the same be returned to the person or corporation from whom the same was taken. An appeal to the circuit court for the county, or the Baltimore city court, as the case may be, may be taken within two hours by the defendant from the judgment of the justice upon giving sufficient bond to cover the cost of the appeal and the value of the game or fish seized, to be determined by the justice.

Sale of seized game: [Sec.] 45. In case of judgment and order of sale, as specified in section 44, and in absence of appeal and the filing of a proper bond, as provided by said section, then said constable shall at once post two notices, one at the justice's door and the other at the place of sale, specifying in each notice the time and place of sale, not less than five hours from the hour at which the judgment was rendered, and also a description of the game or fish to be sold; said place of sale shall be at the most public place obtainable for the purpose. Said constable shall, at the time and place mentioned in said notice, sell such game or fish at public auction to the highest bidders for cash, and at once pay the proceeds of such sale to the justice; said constable shall give the purchaser a certificate of purchase in which shall be a particular description of the game or fish sold, together with the date of sale.

Disposition of proceeds: [Sec.] 46. If there has been no appeal, or if the judgment of the justice is affirmed on appeal, the said justice shall deduct his costs, if not already paid, together with the constable's costs, which shall include a fee of ten per centum of the amount of the proceeds of the sale for his services as auctioneer, and shall distribute the balance of such proceeds of sale or the ascertained value of the game or fish seized as secured by the bond, as follows: One-half shall be paid to the game warden, which shall be kept by him for his services, and one-half shall be paid into the county or city treasury for the benefit of the school fund.

Nonliabilty: [Sec.] 47. The game warden and the deputy game wardens shall not be liable for any damage or costs sustained by any person or corporation by reason of the wrongful seizure of game or fish under this sub-title; provided, however, that the enforcement of this sub-title shall in nowise prevent prosecution of persons or corporations for violations of the game or fish laws of this State.

State fishery force; State officers: [Sec.] 48. Whenever the game warden shall require the assistance of the State fishery force he shall so advise the governor who, acting for the board of public works shall, if he approve the request of the game warden, instruct the commander of the State fishery force to forthwith assist the game warden in the enforcement of the game and fish laws of the State. And whenever the game warden or the deputy game wardens shall require the advice and assistance of the State's attorneys and sheriffs of the several counties of the State or of Baltimore city, it shall be the duty of said officers to render the required assistance as in other State cases.

Liability of accessory: [Sec.] 5. Any person aiding or abetting another by furnishing a boat or float of any description, or gun or ammunition, to be used in violation of sections 1, 2 or 3 [prohibiting shooting waterfowl bedded in flocks from any floating craft or boat; shooting same from boats or craft of any kind while said waterfowl are flying about their feeding grounds or elsewhere over the waters of the State] of this article, shall be deemed guilty of a misdemeanor and shall be dealt with and fined as if he had violated them himself.

Arrest; Seizure: [Sec.] 6. Any officer of the State fishery force, sheriff, constable or commissioned militia officer of the county wherein the provisions of this article relating to water-fowl may be violated, who shall be satisfied either upon his own view or information received of any other person, whether on oath or not, that any one has violated the said provisions, is authorized and empowered to arrest and take into custody such person so offending, and the boatmen or other persons found on board of the vessel, boat, float, canoe or craft employed to convey such offender for the purpose of shooting at or killing wild ducks or wild fowl of any description contrary to the provisions of this article, and shall seize and take into his possession the said vessel, boat, float, canoe or craft, and the gun or guns, ammunition and decoy ducks in the same or in the use or possession of the offender or offenders.

Prima facie evidence: [Sec.] 7. The said officers shall carry the person or persons so arrested before a justice of the peace of the county wherein the offense may be committed, representing to the justice the breach of the law committed; and the said justice shall inquire fully into the alleged offense, of which the finding of vessels, boats, floats, canoes or crafts employed as aforesaid or in the possession or use of the persons charged shall be considered as *prima facie* evidence of guilt.

Proceedings: [Sec.] 8. If after a full investigation the said justice shall think the charge groundless, he shall dismiss the same at the cost of the county; but if he shall be of the opinion that any wild ducks or other water-fowl have been shot at or killed contrary to sections 1, 2 or 3, he shall render a judgment of not less than ten nor more than one hundred dollars against each person engaged directly or indirectly therein for each offense, and he may commit him to the county jail in the event of his not paying the fine thus imposed, if the officer making the arrest and seizure desire it; and if committed, the officer who desired the commitment shall pay the jail fees at the rate of twenty-five cents per day, and in case of a failure to pay the said fees for the space of three consecutive days, the party whose jail fees shall thus remain unpaid shall be discharged from confinement.

Sale of seized appliances: [Sec.] 9. The justice shall also adjudge and condemn as forfeited to said officer and to the person or persons who may have aided him in making the arrest and seizure the vessel, boat, float, canoe or craft, together with the tackle, furniture and apparel on board of the same at the time of the seizure, and all or any other property in the possession of the said officer, found, seized, and taken as aforesaid; and the said officer with the person or persons who aided him in making the arrest and seizure shall sell the same to the highest bidder for cash after ten days' notice.

Appeal: [Sec.] 10. If any person so convicted shall think himself aggrieved by such conviction, he shall be at liberty to appeal from the judgment of the justice of the peace, within ten days from the rendition thereof, to the circuit court for the county wherein the offense is alleged to have been committed; provided, he give bond to the State with two sufficient securities, to be approved by the said justice, in a penal sum of double the amount in value of the boat or craft and property so seized and the fines imposed, to be estimated by the said justice, conditioned to prosecute his appeal to the circuit court; and it shall be the duty of the justice taking the appeal bond immediately to deliver the same to the officer who made the arrest; and in case of forfeiture of the bond the said officer may prosecute the same for his use and the use of those engaged with him in making the arrest and seizure.

Resisting officer: [Sec.] 11. If resistance be made to the officer engaged in making such arrest or seizure, such resistance shall be deemed a misdemeanor, presentable by the grand jury of the county, and punishable in the circuit court therefor by fine and imprisonment as other misdemeanors are punished.

Disposition of proceeds; Exception: [Sec.] 12. After the payment of the costs of the prosecution of the offenders, the balance arising from the fine and the sale of the boat and other property hereinbefore mentioned shall be divided and apportioned in the following manner: one-half to the officer and those who assisted him in making the arrest and seizure, and the balance to be paid over to the county commissioners for the benefit of the school fund of the county. The preceding sections shall not apply to Baltimore, Harford or Cecil counties, as to which special provision is made in the local laws thereof.

Confiscating gun: [Sec.] 22. [Prohibits use of any gun other than one fired from the shoulder] and every gun which is not so habitually fired from the shoulder, as aforesaid, shall be liable to seizure by any State or county officer authorized to execute warrants, and the forfeiture and destruction by any justice of the peace before whom such gun shall be produced.

Prima facie evidence: [Sec.] 23. [Prohibits shooting of any birds at night] and if at the trial it shall be proved that the person charged with shooting at or the killing said birds in the night time was at or about the place where the shot was fired, and that he had a gun in his possession on the night in question, in the vicinity where such shooting occurred, either prior to or at the time of or after the shooting, such fact shall be deemed *prima facie* evidence of his having violated the provisions of this section.

Big guns; Prima facie evidence: [Sec.] 24. [Prohibits possession, sale and disposition of big or swivel guns for hunting wildfowl,] and the possession of, sale or disposition by any person of any such big or swivel gun in this State shall be deemed *prima facie* evidence that the same is possessed or sold, or disposed of with the intent, and for the purpose of shooting at or killing such birds in this State, and every gun shall be deemed a big gun, for the purpose of this law, which is not habitually raised at arm's length and fired from the shoulder, * * *

Jurisdiction; Informer: [Sec.] 31. The justices of the peace of this State in and for the city or county wherein the offense shall be committed shall have jurisdiction to hear and determine all prosecutions for the purpose of enforcing fines and penalties * * * and in all cases where such prosecutions are begun or instituted by any person other than the State game warden or one of the deputy game wardens of this State, and shall result in the collection of a fine or fines, then one-half of such fine or fines, after the proper court costs or costs of the justice of the peace in the trial and decision of the case shall have been paid, shall be paid to the informer, and the other half to the school fund of the city or county in which said prosecution is conducted.

MASSACHUSETTS.

Revised Laws, 1902, chap. 91, p. 787.

Commissioners: Sec. 2. There shall be a board of commissioners on fisheries and game consisting of three persons who shall be appointed by the governor, with the advice and consent of the council, for the term of five years from the time of their appointments and who shall be removable at the pleasure of the governor.

Arrest without warrant: Sec. 4. The commissioners and their deputies, members of the district police and all officers qualified to serve criminal process may arrest without warrant any person whom they find violating any of the fish or game laws, except that persons engaged in the business of regularly dealing in the buying and selling of game as an article of commerce shall not be so arrested for having in possession or selling game at their usual places of business.

Fines and forfeitures: Sec. 137. All fines, penalties and forfeitures recovered in prosecutions under the laws relative to fisheries, * * * shall be equally divided between the complainant and the commonwealth but if the complainant is a deputy appointed by the commissioners on fisheries and game and receiving compensation from the commonwealth, such fines, penalties and forfeitures shall be paid into the treasury of the commonwealth.

Revised Laws, chap. 92, p. 809.

Prima facie evidence: Sec. 11. [As amended by Laws of 1906, chap. 241.] * * * The constructing or setting of a trap, snare or net adapted for the taking or killing of a game bird, water fowl, hare or rabbit, upon premises frequented by them, shall be prima facie evidence of such constructing and setting with intent to take and kill contrary to law; and possession of a ferret in a place where the game mentioned in this section might be taken or killed, shall be prima facie evidence that the person having it in possession has used it for taking and killing game contrary to law. Ferrets which are used in violation of the provisions of this section shall be confiscated.

Authority of Commissioners: Sec. 19. The authority of the commissioners on fisheries and game and of their deputies shall extend to the propagation, protection and preservation of birds and animals in like manner as to fish.

Disposition of fines: Sec. 20. [As amended by Laws of 1907, chap. 300.] All fines and forfeitures accruing under the provisions of laws relating to birds, mammals and game shall be paid and disposed of in accordance with the provisions of section one hundred and thirty-seven of chapter ninety-one.

Acts of 1902, chap. 127, p. 64.

Prima facie evidence: Sec. 2. Possession of the wild or undomesticated birds specified in this act [nongame birds, except certain species,] shall be prima facie evidence that they have been captured and are held in possession contrary to law.

Acts of 1904, chap. 367, p. 237.

Seizure: Sec. 1. Any commissioner on fisheries and game, deputy commissioner on fisheries and game, member of the district police, or officer qualified to serve criminal process, may, with a warrant, search any boat, car, box, locker, crate, or package, and any building, where he has reason to believe any game or fish taken or held in violation of law is to be found, and may seize any game or fish so taken or held, and any game or fish so taken or held shall be forfeited: *Provided, however*, That this section shall not authorize entering a dwelling house, or apply to game or fish which is passing through this Commonwealth under authority of the laws of the United States.

Search warrant: Sec. 2. A court of justice authorized to issue warrants in criminal cases shall, upon complaint under oath that the complainant believes that any game or fish unlawfully taken or held is concealed in a particular place, other than a dwelling house, if satisfied that there is reasonable cause for such belief, issue a warrant to search therefor. The search warrant shall designate and describe the place to be searched and the articles for which search is to be made, and shall be directed to any officer named in section one of this act, commanding him to search the place where the game or fish for which he is required to search is believed to be concealed, and to seize such game or fish.

Approved May 23, 1904.

Acts of 1905, chap. 317, p. 236.

An act to provide for granting to unnaturalized, foreign born persons licenses to hunt.

Production of alien license: Sec. 2. * * * The said license shall not be transferable, and shall be exhibited upon demand to any of the commissioners on fisheries and game or their deputies, and to any game warden or deputy game warden, and to any sheriff, constable, police officer or other officer qualified to serve process. The fees received for the said licenses shall annually be paid into the treasury of the Commonwealth.

Approved April 21, 1905.

Acts of 1907, chap. 198, p. 116.

Nonresident hunting license, production of: Sec. 4. No license shall be valid unless the signature of the person to whom it is issued is written thereon, and every such person shall at all times when hunting carry his license on his person, and shall at all reasonable times and as often as requested produce and show such license to any person requesting him to do so, and if he fails or refuses so to do he shall forfeit the license and be deemed to be hunting in violation of the provisions of this act.

Failure to produce license; Arrest without warrant: Sec. 6. The commissioners on fisheries and game, and the detectives in their employ, shall have the right, after demand and refusal or failure to exhibit any such license, to arrest without warrant any non-resident person or persons found hunting, pursuing or killing any wild animal, wild fowl or bird, and for the purpose of this arrest any person who shall refuse to state his name and place of residence on demand of such officer shall be deemed a non-resident.

MICHIGAN.[a]

Compiled Laws, 1897, chap. 150, p. 1800.

State game warden; Appointment: (5753) SEC. 1. That it shall be the duty of the Governor to appoint some person, a resident of this state, game and fish warden. Said warden shall hold his office for four years, or until his successor has been appointed and qualified, unless removed for cause by the Governor. [Other provisions of this section superseded by Laws of 1899, No. 37.]

Duties; Actions: (5754) SEC. 2.[a] It shall be the duty of said game and fish warden to * * * enforce the statutes of this State for the preservation of moose, wapiti, deer, birds and fish, and to enforce all other laws of this State for the protection and propagation of birds, game and fish now in force, or hereafter enacted, and to bring or cause to be brought and to prosecute or cause to be prosecuted actions and proceedings in the name of the people of this State to punish any parties for the violation of said statutes and laws. Such actions and proceedings may be brought in the name of the people in the like cases, in the same courts, and under the same circumstances as they may now or at any time hereafter be brought by any individual or by the prosecuting attorneys of the several counties under and by virtue of any laws now existing or hereafter enacted.

Search; Prima facie evidence; Seizure: (5755) SEC. 3.[b] Said warden may make complaint and cause proceedings to be commenced against any person for the violation of any of the laws for the protection or propagation of game or fish without the sanction of the prosecuting attorney of the county in which such proceedings are commenced, and in such case he shall not be obliged to furnish security for costs. Said warden may also appear for the people in any court of competent jurisdiction in any case for violation of any of the laws for the protection or propagation of fish or game, and prosecute the same in the same manner and with the same authority as the prosecuting attorney of the county in which such proceedings are commenced. Said warden shall have power to search any person and examine any boat, conveyance, vehicle, fish box, fish basket, game bag, or game coat, or any other receptacle for game or fish, when he has good reason to believe that he will thereby secure evidence of the violation of the law; and any hindrance or interference, or attempt at hinderance or interference with such search and examination, shall be prima facie evidence of a violation of the law by the party or parties who hinder or interfere with, or attempt to hinder or interfere with such search and examination. Said game and fish warden shall at any and all times seize and take possession of any and all birds, animals or fish which have been caught, taken or killed, at a time, in a manner or for a purpose, or had in possession or under control, or have been shipped contrary to any of the laws of this State, such seizure may be made without a warrant. Any court having jurisdiction of the offense, upon receiving proof of probable cause for believing in the concealment of any bird, animal or fish, caught, taken, killed, had in possession, under control, or shipped contrary to any of the laws of this State, shall issue a search warrant and cause a search to be made in any place, and to that end may cause any building, enclosure, or car to be entered, and any apartment, chest, box, locker, crate, basket or package to be broken open and the contents thereof examined by said game and fish warden. All birds, animals or fish or nets or fishing appliances or apparatus seized by the said game and fish warden shall be disposed of in such manner as may be directed by the court before whom the offense is tried or by any court of competent jurisdiction. Said game and fish warden shall not be liable for damages on account of any search, examination or seizure, or the destruction of any nets or fishing apparatus of any kind, in accordance with the provisions of this act.

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[a] Acts of 1907 not received.

[b] For a judicial exposition of this section, see Osborn *v.* Charlevoix Circuit Judge (Mich.), 72 N. W., 982.

Process; Arrest: (5756) Sec. 4. Said game and fish warden shall have the same power to serve criminal process as sheriffs, and shall have the same right as sheriffs to require aid in executing such process. Said warden may arrest, without warrant, any person caught by him in the act of violating any of the aforesaid laws for the protection or propagation of birds, game or fish, and take such person forthwith before a justice of the peace, or other magistrate having jurisdiction, who shall proceed without delay to hear, try and determine the matter, and the same proceedings shall be had as near as may be, as in other criminal matters triable before a justice of the peace, or other magistrate having jurisdiction. Such arrests may be made on Sunday, in which case the person arrested shall be taken before a justice of the peace, or other magistrate having jurisdiction, and proceeded against as soon as may be, on a week day following the arrest.

Report to auditor-general: (5757) Sec. 5. Said warden shall, in the month of December in each year, file in the office of the auditor-general, an account in writing, stating the days and parts of days spent in the discharge of his duty, the kind of service rendered and the places where rendered, and the expenses paid or incurred in the time of the discharge of such duties, which account shall be verified by the oath of said warden stating that the same is correct and true in every particular.

Report to secretary of state: (5758) Sec. 6. [The warden shall report in writing to the secretary of state, at the close of each month, a full account of all he has done, and he shall not receive any payment for his services until such report is made. The secretary of state shall transmit this report to the legislature.]

Deputies; County wardens; Resisting officer: (5759) Sec. 7. The said game and fish warden shall have power to appoint deputy game and fish wardens, who shall have the same power and authority herein provided for the game and fish warden himself, subject to the supervision and control of and to removal by the game and fish warden. Said deputy game and fish wardens shall receive three dollars per day for each day actually spent in the discharge of their duties, under the direction of the game and fish warden, and their actual expenses necessarily incurred when so employed; said three dollars per day and expenses to be paid monthly on the warrant of the Auditor General, on the approval of itemized vouchers thereof, verified under oath and certified by the game and fish warden; but the number of deputy wardens shall not exceed ten and the total amount certified by the game and fish warden and approved by the Auditor General for compensation and expenses of deputy wardens in any one year shall not exceed the sum of two thousand dollars. Said game and fish warden shall also have power to appoint in each county not to exceed three residents thereof as county game and fish wardens, who shall have the same powers in their respective counties as is herein provided for the game and fish warden himself, subject to the supervision and control of and to removal by the game and fish warden. The said county game and fish wardens may be employed by individuals, clubs and corporations interested in the enforcement of fish and game laws, and shall receive such other compensation as may be allowed and provided for by the supervisors of their respective counties, * * * Any person who hinders, obstructs or interferes with, or attempts to hinder, obstruct or interfere with the said game and fish warden or any deputy or county warden in the discharge of any of his duties, shall be deemed guilty of a misdemeanor. * * *

Disposition of license fees: (5797) Sec. 6. [As amended by Laws of 1905, No. 225.] Such [county] clerk shall retain for his own use out of the moneys received for each [resident and nonresident deer] license issued the sum of twenty-five cents, which shall cover the swearing of the applicant to the affidavit herein referred to, and all other services under this act and shall pay the balance to the county treasurer of his county on the first day of March, May, September and December of each year, specifying the amount thereof received for resident and for non-resident licenses. Said county treasurer shall forthwith forward to the State Treasurer all sums of money received by him for non-resident licenses and one dollar of each license fee received by him for resident licenses and the balance he shall hold in his hands to be used as hereinafter provided. The amount remaining in the hands of the county treasurer shall be paid out upon orders of the board of supervisors, but only for services rendered by sheriffs, constables, deputy game wardens and county game wardens in enforcing the game and fish laws of this State, in said county. All moneys to be retained by the county treasurer under the provisions of this section against which orders have not been drawn by the board of supervisors shall be paid into the State treasury at the expiration of one year after the year in which the license was issued. So much of said moneys as is paid into the State treasury shall be paid out by the Auditor General upon his warrant, but only in payment for services rendered by the State Game and Fish Warden and his deputies as allowed by law for such services, and the necessary traveling expenses in enforcing the game and fish laws of this State, upon itemized bills duly certified by the State Game and Fish Warden and allowed by the Board of State Auditors, whose duty it shall be to audit and allow the same.

Production of license: (5801) Sec. 10. Any person found hunting any deer protected by the laws of this State with any kind of fire arms and who shall refuse to show his license herein provided for, to any sheriff, deputy sheriff, constable, game warden, deputy game warden or county game warden on demand, shall be deemed and held to be guilty of violating the provisions of this section, in addition to violating any of the other provisions of this act, and may be fined upon conviction for such refusal as provided in section twelve of this act.

Perjury: (5802) Sec. 11. Any person who shall procure a license under the pro visions of this act by false swearing shall be guilty of perjury * * *

Prima facie evidence: (5807) Sec. 4. The possession or having under control of any kind of bird, game or fish, the killing of which is at any time or all times prohibited by the laws of this State, shall be prima facie evidence that it was killed in this State, to disprove which it shall be necessary to show by the testimony of the party who actually caught, took or killed the same, that it was killed outside of this State. Whenever it shall appear that any bird, game or fish of a kind, the killing of which is at any time or at all times prohibited by the laws of this State, was caught, taken or killed outside of this State, it shall be prima facie evidence that such bird, game or fish was caught, taken or killed at a time, in a manner and for a purpose prohibited by the laws of the State, Territory or country where it was caught, taken or killed, and was shipped out of said State, Territory or country in violation of the laws thereof, to disprove which it shall be necessary to show by direct and positive evidence that it was killed at a time, in a manner and for a purpose permitted by the law of the State, Territory or country where it was killed and that its shipment out of said State, Territory or country was not forbidden by the law thereof.

Limitation: (5811) Sec. 7. All prosecutions under the provisions of this act [prohibiting possession of game illegally taken in another State] shall be commenced within one year from the time such offense was committed.

Acts of 1899, No. 37, p. 53.

Compensation: Sec. 1. The State Game and Fish Warden shall receive an annual salary of two thousand dollars, payable monthly, and shall also be reimbursed his actual expenses necessarily incurred in the performance of his duties, to be paid monthly on the warrant of the Auditor General on the approval of his vouchers therefor. Said State Game and Fish Warden shall devote his entire time to the duties of his office.

Chief Deputy; Compensation: Sec. 2. Said Game and Fish Warden shall have power to appoint a Chief Deputy, for whose acts he shall be responsible, and may revoke such appointment at pleasure. Said Chief Deputy shall take the constitutional oath of office, and shall do such work in the game and fish warden department as shall be assigned him. During the sickness, absence or disability of the Game and Fish Warden he may execute the duties of the office. Said Chief Deputy shall devote his entire time to the work of his office and shall receive an annual salary of fifteen hundred dollars, and his actual expenses necessarily incurred, to be paid monthly on the warrant of the Auditor General, on the approval of his vouchers therefor by the State Game and Fish Warden.

Bond: Sec. 3. [State Game Warden shall give bond in the sum of $5000.]

Acts of 1905, No. 257, p. 370.

An act to revise and amend the laws for the protection of game and birds.

Prima facie evidence: Sec. 6. [Possession of deer, or fawn, or skin thereof in red or spotted coat, is prima facie evidence of illegal killing.]

Prima facie evidence: Sec. 8. No person shall make use of any artificial light in hunting, pursuing or killing deer, or in attempting to hunt, pursue or capture, or kill any deer, and the wearing or having such light on the head or in possession in the woods shall be prima facie evidence of a violation of this section.

Prima facie evidence; Killing dogs: Sec. 9. No person or persons shall make use of a dog in hunting, pursuing or killing deer; the presence of a hound in the woods, hunting camp, logging camp or club house during the deer hunting season shall be prima facie evidence of their unlawful use. Any dog pursuing, killing or following upon the track of a deer is hereby declared to be a public nuisance and may be killed by any person when so seen without criminal or civil liability.

Burden of proof: Sec. 22. In all prosecutions for a violation of any of the provisions of this act, the person or persons claiming the benefit of section twenty [permitting possession of specimens for scientific or educational purposes and of game lawfully killed for five days after close of open season] must show affirmatively as a part of his defense on the examination or trial, that the animal or bird of which the dead body or carcass or skin, or any portion thereof, is shown to have been in his possession during the time when by law the killing of such animal or bird is unlawful, was killed at a time, and in the manner, and for the purpose authorized by law, and that his possession at the time complained of was for one of the purposes authorized by said section, and it shall not be necessary for the prosecution to aver or prove that such possession was not for the purposes authorized by said section.

Separate offense; Prima facie evidence; Liability: Sec. 24. The injuring, destruction or killing or capturing or selling, or having in possession of each animal or bird injured, captured, killed or destroyed, sold or possessed contrary to the provisions of this act shall be a separate offense and the person so offending shall be liable to the penalties and the punishments herein provided for each offense. In all prosecutions for a violation of any of the provisions of this act, proof of the possession of the dead body, carcass or skin, or any portion thereof, of any animal or bird mentioned or referred to in this act [all the game of the State], except as hereinbefore provided at a time when the killing thereof is unlawful, shall be prima facie evidence that such animal or bird was killed at a time when the killing thereof was prohibited by law. All persons violating any of the provisions of this act, whether as principal, agent, servant, or employe, shall be equally liable as principal, and any person or principal shall be liable for any violation of any of the provisions of this act, by his agent, servant or employe, done under his direction or knowledge.

Disposition of license fees: Sec. 27. [Fees for export licenses are paid into the State treasury for use in payment of the State Game and Fish Warden and his deputies.]

Audubon Society wardens: Sec. 28. It shall be the duty of the State Game and Fish Warden and all deputy wardens, sheriffs, deputy sheriffs and constables, to enforce the provisions of this act, and the Michigan Audubon Society, a body incorporated under the laws of the State of Michigan, may name four persons to represent such society in carrying out the provisions of this act. Each person so named shall be duly appointed by the Game and Fish Warden and shall be invested with and exercise all the powers of a deputy game warden, but shall receive no compensation therefor from the State of Michigan or any county thereof. It shall be the duty of the Michigan Audubon Society to assign territory to the persons selected by them to carry out the provisions of this act as above provided and to require a monthly report from each of such persons. Upon complaint that such person or persons so appointed are negligent in the duties assigned to him or them in carrying out the provisions of this act, the said Audubon Society shall report the fact to the Game and Fish Warden, who shall immediately remove such person or persons and upon recommendation of the Audubon Society shall make appointment to fill such vacancy. In pursuance of this provision the said Michigan Audubon Society shall file a bond with the Secretary of State in the amount of one thousand dollars, with sufficient sureties, approved by the Secretary of State.

Penalty: Sec. 29. * * * and in all cases when a fine and cost is imposed the court shall sentence the offender to be confined in the county jail until such fine and costs are paid, for any period not exceeding the maximum jail penalty provided for such offense.

Approved June 16, 1905.[1]

MINNESOTA.

Laws of 1905, chap. 344, p. 598.

Game and fish commission; Appointment; Terms: Sec. 1. A state game and fish commission is hereby created, consisting of five (5) members to be appointed by the governor for a term of four (4) years each. Those heretofore appointed pursuant to chapter three hundred thirty-six (336) of the laws of 1903 shall continue in office until the expiration of their respective terms. Vacancies arising from any cause shall be filled by the governor. Members shall serve without compensation except for necessary expenses to be paid upon an itemized statement thereof duly audited by said commission.

Office: Sec. 2. Said commission shall have an office in the capitol and be supplied with suitable stationery, a seal and blanks and postage for the transactions of its business.

General powers; Duties: Sec. 3. Said commission shall enforce the laws of this state involving the protection and propagation of all game animals, game birds, fish and harmless birds and animals.

Said commission shall have general charge of—

1. The propagation and preservation of such varieties of game and fish as it shall deem to be of public value.

2. The collection and diffusion of such statistics and information as shall be germane to the purpose of this act.

6. The seizure and disposition of all game birds, game animals and fish, either taken, killed, transported or possessed contrary to law, of all dogs, guns, seines, nets, boats, light, or other instrumentalities unlawfully used or held with intent to use, in pursuing, taking, attempting to take, concealing or disposing of the same.

Reports; Records: Sec. 4. [As amended by Laws of 1907, chap. 469.] Said commission shall, on or before Dec. 1 of each even numbered year, submit to the governor a detailed report of its actions, including the amount of money received from all sources, an inventory of all game, fish, guns, dogs, seines, nets and other property seized and sold, with the names of the purchasers, and the amount received, and an itemized statement of its disbursements. The books and vouchers of said commission shall be subject to examination by the public examiner at all times.

Executive agent: Sec. 5. [As amended by Laws of 1907, chap. 469.] The commission shall appoint one of its members its executive agent, who shall devote all his time to the discharge of his duties, and shall receive compensation therefor to be fixed by said commission, not exceeding twenty-five hundred (2,500) dollars per year. He shall act as such executive agent during the pleasure of the commission and be subject to its direction. When the commission is not in session, he is hereby authorized to exercise in its name, all the rights, powers and authority vested in said commission. Before entering upon the discharge of his duties he shall give a bond to the State of Minnesota, with sureties or security, to be approved by the commission, in the penal sum of five thousand (5,000) dollars, conditioned for the faithful accounting of all state property coming into his hands.

Employees: Sec. 6. * * * It may also employ a sufficient number of game wardens, other persons, and office assistants, as may be necessary to carry out the purposes of this chapter, and fix their periods of service and compensation.

Other officers; Attorney: Sec. 7. The county attorneys, sheriffs, constables and other peace officers, are hereby required and it is made their duty, to enforce the provisions of this chapter and the commission may employ an attorney or attorneys to perform such legal services as said commission may require. He shall appear for said commission in all civil actions in which it or its wardens may be interested officially, and may assist the county attorney in the prosecution of criminal actions arising under this chapter, and when for any reason the county attorney does not prosecute such criminal actions, he may conduct such prosecutions on behalf of the state with the same authority as the county attorney. The compensation to be paid said attorney shall be fixed by the commission and paid out of the funds provided for the enforcement of this act.

Execution of writs: Sec. 8. [As amended by Laws of 1907, chap. 469.] The executive agent of said commission, all members and all wardens appointed by said commission, shall have full power and authority to serve and execute all warrants and process the [of] law issued by the court in enforcing the provisions of this act, or any other law of this state relating to the preservation and propagation of game and fish, in the same manner as any constable or sheriff may serve and execute the same, and for the purpose of enforcing the provisions of this chapter, they may call to their aid any sheriff, deputy sheriff, constable or police officer or any other person, and it shall be the duty of all sheriffs, deputy sheriffs, constables or police officers and other persons, when called upon to enforce and aid in enforcing the provisions of this chapter. The executive agent and all deputies shall have the power to arrest without a warrant any person or persons found in the act of violating any law enacted for the purpose of protecting or propagating game or fish.

Bonds: Sec. 9. The following appointees shall give bonds to be approved by the commission and filed in the office of the secretary of state, conditioned for the faithful discharge of their respective duties, in the following amounts:

* * * * * * *

Second—Each game warden five hundred dollars ($500).

Terms defined; Agency no excuse: Sec. 10. The words "sell" and "sale" as used in this chapter shall be construed as meaning any sale of (or) offer to sell or having in possession with intent to sell, use or dispose of the same contrary to law. The word "person" shall be deemed to include partnerships, associations, and corporations, and no violation of any provisions of this chapter shall be excused for the reason that the prohibited act was done as the agent or employe of another, nor that it was committed by or through an agent or employe of the person charged. The word "possession" shall be deemed to include both actual and constructive possession as well as the control of the article referred to. The term "waters of this state" shall be held to include all the boundary waters of the state, and the provisions of this chapter shall be deemed to extend and be in force and effect over, upon and in all thereof. The terms "any part thereof" or "the parts thereof," whenever used in this chapter shall be deemed to include the hides, horns and hoofs of any animal so referred to, and the plumage and skin and every other part of any bird so referred to. The term "fur bearing animals" shall not be deemed to include deer, moose or caribou.

Inspection of hotels, etc.: Sec. 11. The game and fish commission and all game wardens shall inspect from time to time, hotels, restaurants, cold storage houses or plants and ice houses commonly used in storing meats, game or fish for private parties, including all buildings used for a like purpose, for the purpose of determining whether game or fish are kept therein in violation of the provisions of this chapter. Any person, in possession or control, or in charge of any hotel, restaurant, storage plant or building referred to, or any part thereof, who refuses or fails to permit any member of the game and fish commission or any warden appointed by said commission to enter any such building or any part thereof, or any receptacle therein, for the purpose of making such inspection, is guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than fifty (50) or over one hundred (100) dollars, including costs of prosecution, or imprisonment in the county jail for a term of not less than thirty (30) or over ninety (90) days for the first offense, and upon conviction for a second offense shall be punished by imprisonment in the county jail for a period of not less than sixty (60) or over ninety (90) days.

Contraband game; Seizure; Search: Sec. 12. Any bird, animal, fish or any part thereof, caught, killed, shipped or had in possession or under control contrary to any of the provisions of this chapter, is hereby declared to be contraband.

The game and fish commission, all game wardens, sheriffs and their deputies, constables and police officers, shall seize and take possession of any and all birds, animals, or fish or any part thereof which have been caught, taken, killed or had in possession or under control or shipped contrary to any of the provisions of this chapter. Any court having jurisdiction may upon complaint showing probable cause for believing that any bird, animal, fish or any part thereof caught, taken, killed or had in possession or under control by any person, or shipped or transported contrary to the provisions of this chapter, is concealed or illegally kept in any building, car or receptacle, shall issue a search warrant and cause a search to be made in any such place for any such birds, animals, fish or any part thereof, and may cause any building, inclosure or car to be entered, and any apartment, chest, box, locker, crate, basket, package, or any other receptacle whatever to be broken, opened and the contents thereof examined. All such officers taking or seizing any such birds, animals or fish, or any part thereof, shall at once report all the facts attending the same to the commission.

Contraband devices: Sec. 13. All nets, seines, lanterns, snares, devices, contrivances and materials, while in use, or had, or maintained, for the purpose of catching, taking or killing, or attracting or deceiving any bird, animal, or fish contrary to any provision of this chapter, within this state, or upon or in the boundary waters thereof, including fish houses, inclosures or other sheltering structures or appliances erected or maintained upon the ice or in any waters, or on the shore of any lake, pond or stream, is hereby declared to be and is a public nuisance. The commission, all game wardens, sheriffs and their deputies, constables and police officers shall without warrant or process, take, seize, abate and destroy any and all of the same while being used, had or maintained for such purpose and no liability shall be incurred therefore [sic] to any person.

Witnesses: SEC. 14. In any prosecution under the provisions of this chapter, a participant in the violation thereof may testify as a witness against any other persons violating the same, without incriminating himself, [the evidence so given shall not be used] in any criminal proceeding for such violation.

Limitations: SEC. 15. All prosecutions under this chapter shall be commenced within two (2) years from the time the offense was committed.

Exchange of specimens: SEC. 16. The commission may secure by purchase or otherwise, and exchange specimens of game birds, game animals or fish with the game commission or state game warden of other states for breeding purposes, and not otherwise; and may also grant permission under the seal of said commission, to any accredited representative of any incorporated society of natural history to collect for scientific purposes only, nests, eggs, birds, animals or fish protected by this chapter. Such specimens shall not be sold or transferred.

Disposition of fines: SEC. 19. All fines collected under any of the provisions of this chapter shall be paid into the county treasury of the county wherein the conviction was had, to the credit of the general revenue fund.

Disposition of other moneys: SEC. 20. All moneys collected by the commission upon licenses issued by it, or bonds or contracts entered into with any person, including money received from all other sources, except fines, shall be paid into the state treasury and credited to the game and fish commission fund to be used for the purpose of enforcing the provisions of this chapter.

Rewards: SEC. 21. [As amended by Laws of 1907, chap. 469.] The following rewards shall be paid by the game and fish commission out of any funds subject to its order to any person or persons making complaint thereof, for the arrest and conviction of any person violating any of the provisions of this chapter or other enactments involving: (a) Moose or caribou, the sum of fifty (50) dollars; (b) Deer, the sum of twenty-five (25) dollars; (c) Any game bird or fish, ten (10) dollars; provided, however, that this section shall not apply to any game warden regularly employed and receiving salary from said commission.

Proof: SEC. 22. * * * *Provided, however*, that in any prosecution for any violation of any of the provisions of this chapter it shall not be necessary for the prosecution to allege or prove that the birds or animals were not domesticated or that * * * the birds, animals or fish were not taken for scientific purposes, but the person claiming that such birds, or animals were domesticated, * * * or that the said birds or animals were taken for scientific purposes, as herein provided, shall prove on the hearing or trial that such birds or animals were domesticated, * * * or that such birds or fish were taken for scientific purposes as by law provided, or were not caught, taken or killed outside this state, or had in possession without license or permit therefor.

Shooting with dogs: SEC. 28. No person shall hunt, pursue, catch, take or kill any of the animals in this chapter mentioned, with any dog or dogs. Any dog or dogs used or attempted to be used in violation of any of the provisions of this section is hereby declared to be and is a public nuisance, and it shall be lawful for any person to kill any dog or dogs so being used or attempted to be used. * * *

Possession of game and fish; Prima facie evidence: SEC. 31. The possession or having under control by any person of any bird, animal or fish, or any part thereof, the killing of which is at any time herein prohibited, shall be prima facie evidence that it was the property of this state at the time it was caught, taken and killed (in this state), also that such possession or having under control at any time when the killing, taking or possession thereof is by this chapter declared to be unlawful, shall be prima facie evidence that such taking and killing occurred during the closed season, unless there remains attached to such game bird or animal or any part thereof, the tag and seal of the state game and fish commission, provided for by this chapter to disprove which it shall be necessary for the party in possession thereof to show that at the time it was caught, taken or killed, it was lawfully caught, taken or killed outside, or within this state, or that it was lawfully caught, taken or killed within the state and that he was lawfully in possession thereof.

Disposition of license fees: SEC. 34. [As amended by Laws of 1907, chap. 469. Provides for resident license.] Ten cents of the amount received for the issuance of said license shall be retained by the county auditor as his fee, and the balance remitted to the state treasurer, who shall credit the same to the game and fish commission fund, to be used for the purpose of enforcing the provisions of this chapter. * * *

Forfeiture of license: SEC. 36. Any person who shall violate any of the provisions of this chapter and who is at the time of such violation in the possession of a license duly issued to him, shall, upon conviction thereof, forfeit such license to the State of Minnesota, and such person shall deliver to the court before whom he was tried any such license, and the court shall forward the same to the commission.

Contraband game: SEC. 37. * * * The having in possession of any game bird or animal or any part thereof which is not so tagged and sealed, or for which a retention permit has not been received, except during the open season and five (5) days thereafter, is hereby made unlawful. Any such game bird or game animal, or any part thereof, had or held in possession by any person during the season when it is unlawful to have the same in possession, is hereby declared contraband and the right of any such person to retain or use the same shall cease. * * *

Sale of game by commission: SEC. 54. The game and fish commission is he hereby authorized to sell to residents of this state at the highest market price obtainable therefor, all furs, fish, game, game animals or game birds now or which may hereafter come into its possession. The proceeds thereof shall be turned into the state treasury and credited to the game and fish commission funds. A record of such sales, including the name of the purchaser and the price paid, shall be kept by the commission. Said commission shall, before selling, tag the same in a manner to be determined by it.

Appropriation: SEC. 57. The sum of thirty-five thousand dollars ($35,000), or so much thereof as may be necessary, is hereby appropriated annually, commencing August 1, 1905, for the purpose of carrying on and enforcing the provisions of this chapter, to be paid for such purpose out of any moneys in the state treasury not otherwise appropriated.

Resisting commissioner or warden: SEC. 61. Whoever shall resist or obstruct the executive agent of said commission, or any member thereof, or any warden or other officers of this state, in the discharge of his duties under this chapter, shall be guilty of a misdemeanor, and upon conviction thereof be punished by a fine of not less than fifty (50) nor more than one hundred (100) dollars and costs of prosecution, or by imprisonment in the county jail for not less than sixty (60) nor more than ninety (90) days for each and every offense.

Attempts: SEC. 64. Any attempt to violate any of the provisions of any section of this chapter shall be deemed a violation of such provision, and any person attempting to violate any of the provisions of any section of this chapter shall be guilty of a misdemeanor, and upon conviction thereof punished by a fine of not less than ten (10) nor more than fifty (50) dollars, and costs of prosecution, or by imprisonment in the county jail for not less than ten (10) nor more than sixty (60) days for each and every offense.

General penalty: SEC. 67. Any person who violates any provision of this chapter for which a penalty has not been heretofore specifically provided, shall be guilty of a misdemeanor, and be punished by a fine of not less than ten (10) nor more than fifty (50) dollars and costs of prosecution, or by imprisonment in the county jail for not less than thirty (30) nor more than sixty (60) days.

Approved April 19, 1905.

MISSISSIPPI.

Code, 1906, chap. 57, p. 706.

Board of supervisors; Wardens: [Sec.] 2305. The boards of supervisors are given full jurisdiction and authority for the protection and preservation of game and fish in their respective counties, and to conserve the same for the use and consumption of the inhabitants, and for that purpose may appoint a game warden who shall discharge such duties as may be prescribed by them. The game warden shall have authority to appoint as many deputies as he may see proper to aid him in the discharge of his duties, and his deputies shall have the same powers in all respects as are conferred upon him.

Forfeiture of guns, etc.: [Sec.] 2310. All game and fish taken contrary to the law or the regulation of the board of supervisors, as well as the guns, dogs, traps, and appliances for taking game, and the seines, nets, rods and the like for catching fish, which may be used in taking game or catching fish unlawfully, shall be forfeited; and the court adjudging the forfeiture in a civil or criminal proceeding shall allow reasonable compensation out of the proceeds to the prosecutor for his trouble.

Disposition of guns, etc.: [Sec.] 2311. It shall be competent for the board of supervisors, in cases of forfeiture of the articles seized, to determine the disposition to be made of them; and if there be any delay given to the party arrested for the hearing of the case, the magistrate may cause the game or fish seized to be disposed of before the hearing and the proceeds to be held to abide the result.

Administration: [Sec.] 2314. The judicial administration of the game laws and regulations of the boards of supervisors pertains, as a matter of police, to any justice of the peace, mayor, or police justice, of any city, town, or village in the county as to all violations of such gaming laws and regulations committed within their respective districts; and the breach of any regulation, order or resolution of the board of supervisors shall be a misdemeanor and a violation of police order, and shall subject to forfeiture the game and fish taken, and the appliances used in the taking thereof, in violation of such police regulation, and to such fine and imprisonment as may be prescribed by the regulations, or to one or more or these penalties. Such matters shall be summarily heard and disposed of as other matters affecting the public police and order.

Arrest: [Sec.] 2315. It shall be the duty of the game warden, sheriff, constable, and city, town, and village marshals within the county, to arrest, with or without process, any person whom they may know, or have good reason to believe, to be violating any such police regulations, and to seize all game, fish, and appliances found in the possession of such persons in violation of police regulations, and shall forthwith convey the person from whose custody the game, fish, and appliances shall have been taken before the proper justice of the peace, mayor, or police justice, to be dealt with according to the rules and regulations prescribed by the board for such offense.

Licensee must exhibit license; Arrest: [Sec.] 2329. It shall be unlawful for any non-resident to hunt within the state unless he has in his possession, ready to exhibit to the game warden or any officer or person, upon request, a license issued to him by the sheriff of the county in which he may be hunting, such license to be issued to non-residents of the state upon payment of a fee of ten dollars to the couuty and ten dollars to the state. * * * Every non-resident found hunting without said license shall be arrested on sight by any game warden or officer of the law, and shall be liable to a fine of not less than twenty-five dollars nor more than fifty dollars, or be imprisoned in the county jail not exceeding thirty days.

Forest and game protective fund: [SEC.] 2330. All fees and fines collected under the provisions of this chapter, except as herein provided, shall go to a fund kept by the county treasurer in each county and called the "forest and game protective fund," the same to be used by the board of supervisors in paying the warden and his deputies for services.

Warden; Appointment; Powers: [SEC.] 2331. The board of supervisors of each county may, on the recommendation of ten or more reputable citizens of said county, appoint a game warden, who shall hold office four years, and who shall have power to appoint deputies for each supervisor's district, who shall hold office for two years. The duties of said game warden and assistants being to diligently seek and report all persons violating this chapter, and they shall have the right to arrest any person or persons found violating any of the provisions of this chapter, and upon the proper warrant issued therefor to search any building not the private residence of any person, car, vessel, vehicle, or package wherein he or they may believe any of the game named in this chapter may be kept or stored contrary to the provisions of this chapter. The warden or his deputies so appointed shall have the right to confiscate all game which he or they may find in the possession of any person or persons in violation of this chapter, irrespective of the time or place such game may have been killed or caught, and such person or persons shall have no redress at law for such seizure of property, unlawfully had in possession.

Informers: [SEC.] 2333. Any person or persons reporting to the game warden, or other officers authorized under the laws of the state to institute the prosecution against any person or persons, or corporation, for violation of the provisions of this chapter, shall receive for such report fifty per cent of the fine levied and collected from such person or persons, or corporation.

Removal of warden: [SEC.] 2335. This chapter in no way affects the power of boards of supervisors in granting further protection to game; and the board of supervisors shall, upon sufficient evidence, remove the game warden or his deputies for non-performance of duty and appoint others in their stead.

MISSOURI.

Laws of 1907, p. —.

Prima facie evidence: SEC. 12. * * * It is further declared unlawful to make use of any artificial light in hunting or killing deer; and the wearing or having such light on the head shall be prima facie evidence of the violation of this section. * * *

State game warden: SEC. 18a. There is hereby created the office of state game and fish warden. The state game and fish warden shall be appointed by the governor, by and with the advice and consent of the senate. He shall hold his office for a term of two years. The state game and fish warden shall receive a salary of $2,000.00 per year, and traveling expenses not to exceed $2,000.00 per year, which salary shall be paid him quarterly, and which expenses shall be paid him on accounts approved by the governor. It shall be the duty of the state game and fish warden to supervise the enforcement of the law under the provisions of this act, and especially with reference to the large cities. He shall have equal authority with the county game and fish wardens to institute prosecutions for violations of the law, and shall direct prosecutions by county game and fish wardens when circumstances justify it.

County game warden: SEC. 19. The sheriff of each county, and the city of St. Louis, shall be ex-officio game and fish warden of his respective county, and the city of St. Louis, and all deputy sheriffs, constables and justices of the peace shall be ex-officio deputy game and fish wardens for their respective counties, and the city of

St. Louis; and for the enforcement and execution of the game and fish law they shall be allowed such fees and costs as are allowed in other criminal prosecutions.

* * *

Duties; Powers: SEC. 20. It shall be the duty of the game and fish warden of each county, and the city of St. Louis, to enforce all laws now enacted and which may be hereafter enacted for the protection, preservation and propagation of game animals, birds and fish of this state, and to prosecute or cause to be prosecuted all persons who violate such laws. Said game and fish wardens shall make complaint and cause proceedings to be commenced against any person for the violation of such laws, and shall not be liable for nor obliged to furnish security for costs, but in all prosecutions under this act wherein the defendant is acquitted the costs shall be taxed as in other criminal prosecutions.

Disposition of license fees: SEC. 23. * * * Such clerks and license collectors shall retain, out of the moneys received for each license [hunting] issued, the sum of thirty cents, which shall cover all costs of license under this act, and shall pay the balance to the county or city treasurer on the first day of each month, and roport the same to the county court or city collector, who shall place all moneys collected under this act, and not otherwise provided for, to the credit of the county road fund, or the city street or road fund.

Production of license: SEC. 25. It is hereby declared to be the duty of every person holding a hunter's license in this State to present the same for inspection by the county game and fish warden, or any of his deputies. Any person refusing to present the same, when a proper demand is made therefor, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not less than $10.00 nor more than $25.00.

Trespass; Disposition of fine: SEC. 27. It shall be unlawful for any person to hunt with gun or dog on the enclosed or cultivated land of another at any time, without the consent of the owner or person in actual control of such land as agent or tenant, and any person violating the provisions of this section shall be fined not less than ten dollars nor more than twenty-five dollars, one-half of the amount to go to the owner of said land, or his agent or tenant furnishing the proof of such violation of this act.

Disposition of confiscated game: SEC. 35. * * * Any game or fish so shipped [from county], or attempted to be shipped, in violatian of this act, shall be confiscated by the game warden and delivered to some charitable institution, and any violation of this act not otherwise provided for shall constitute a misdemeanor and be punishable by a fine of not less than $10 nor more than $100.

Appropriation: SEC. 38a. There is hereby appropriated out of the state treasury, chargeable to the state game protection fund, the sum of $8.000.00 for the payment of the salary and expenses for the next period of two years of the state game and fish warden.

MONTANA.

Laws of 1901, p. 130.

Game warden; Term: SEC. 2. That the governor shall immediately after the passage of this act and every four years thereafter, appoint a state game and fish warden;[a] he shall hold his office for a period of four years, or until removal [removed] as hereinafter provided:

SEC. 3. [Required to give a $3,000 bond].

Duties; Powers: SEC. 4. The duties of said State game and fish warden shall be to examine into and inquire about any violation of the game and fish laws of this state, and to institute prosecutions for any violation of the law and he is vested throughout the state with all the powers of a sheriff in making arrests and in the prosecution of all offenses against the game and fish laws of the state. He shall have general supervision over all deputy game and fish wardens and all special deputy game and fish wardens hereinafter provided for; and he is hereby authorized to appoint such deputies.

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[a] In 1907 the state game warden was also made state fire warden and ex officio member of the board of fish commissioners but without additional compensation.

Compensation: Sec. 6. [As replaced by Sec. 1, Chap. 139, Laws 1907.] The compensation of the State Game and Fish Warden shall hereafter be at the rate of twenty-four hundred ($2400.00) dollars per annum, payable in monthly instalments at the end of each month. He shall be paid for all actual and necessary expenses attached to his office, but such expenses shall not exceed two thousand ($2,000.) dollars per annum.

Deputies' duties: Sec. 7. That each of such deputies appointed as aforesaid shall perform the following duties; to examine into and inquire about any violation of the game and fish laws of this state and to institute prosecutions for any violations of said law, and make report at the end of each month to the state game and fish warden of all arrests and prosecutions made by said deputy, and furnish such other information which he may have that will tend to promote the enforcement of the game and fish laws; and he is vested throughout the state with all the powers of a sheriff in making arrests and in the prosecution of all offenses against the game and fish laws of this state.

Special deputies: Sec. 8. Each state game and fish warden, immediately after his appointment, and every four years thereafter, is hereby authorized and empowered to appoint not less than five (5) nor more than eight[a] (8) special deputy game and fish wardens, as the needs of the state may require. Their term of office shall be for a period of four years but any of said special deputy game and fish wardens so appointed by said state game and fish warden, may at any time be removed at the will of said state game and fish warden.

Bond: Sec. 10. [Special deputy wardens must give bond of $1000.00)

Special deputies' duties: Sec. 11. The duties of said special deputy game and fish wardens shall be to inquire about any violations of the game and fish laws of the State of Montana and to institute prosecutions for any violation of said law, and report in detail to said state game and fish warden at the end of each month,[a] where they were each day of said month and the inquiries and efforts by them made to enforce the game and fish laws; and each is vested throughout the state with all the powers of a sheriff in making arrests and in the prosecution of all offenses against the game and fish laws of said state.

Special deputies; Compensation: Sec. 12 [As replaced by sec. 2, chap. 139, Laws 1907]. The compensatian of all special deputy game and fish wardens shall hereafter be at the rate of fifteen hundred ($1500.00) dollars per annum, payable in monthly installments at the end of each month. Each special deputy game and fish warden shall be allowed three hundred ($300.00) dollars per annum, or as much thereof as may be necessary for his actual and necessary traveling expenses in his own district, when actually engaged in discharging the duties of his office, to be paid out of the game and fish fund upon vouchers duly audited by the State Board of Examiners.

Districts: Sec. 13. The state game and fish warden may divide the State from time to time into such fish districts, as to him may seem best and designate a special deputy game and fish warden to take charge of said district and to perform the duties of special deputy game and fish warden therein. The state game and fish warden may however when he deems it necessary for the better enforcement of the game and fish laws, send any of said special deputies from the district so assigned to them to perform services in another part of the state, and when such special deputy game and fish warden is so sent from his district to perform duties in any other part of the state he shall receive pay for actual and necessary expenses incurred by him while traveling outside of his district in performance of duty under the direction of said state game and fish warden.

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[a] See Laws of 1907, chap. 142, authorizing Staté warden to appoint four additional special deputies, and requiring such deputies to make a weekly report to the State warden.

Fund: Sec. 14. [As amended by Laws of 1903, chap. 38.] There is hereby created a fund to be known as the 'Fish and Game' Fund; and all fines and licenses and other moneys cellected under any of the provisions of the Game and Fish laws shall be paid to the State Treasurer and by him placed in the Fish and Game Fund.

Proceedings; Search; Seizure; Sale of seized game; Nonliability: Sec. 16. The state game and fish warden, the deputy game and fish wardens, and the special deputy game and fish wardens may make complaint and cause proceedings to be commenced against any person for violation of any of the laws for the protection of game or fish and in such case he shall not be obliged to furnish security for costs. Any of said wardens shall have power to search any person and examine any boat. conveyance, vehicle, fish box, fish basket, game bag or game coat, or any other receptacle for game or fish when he has good reasons to believe that he will thereby secure evidence of the violation of the law. Any of said wardens shall at any and all times seize and take possession of any and all birds, animals or fish which have been caught, taken or killed at any time, in a manner and for a purpose or had in possession or under control or had been shipped contrary to any laws of the state, and such seizure may be made without a warrant. Any court having jurisdiction of the offense upon receiving proof of probable cause for believing in the concealment of any bird, animal or fish caught, taken, or killed, had in possession, under control, or shipped contrary to any of the laws of this state shall issue a search warrant and cause a search to be made in any place, and to that end may cause any building, enclosure or car to be entered, and any apartment, chest, box, locker, crate, basket, or package to be broken open and the contents thereof examined by the game and fish warden, or any deputy game and fish warden, or any special deputy game and fish warden, or any sheriff, deputy sheriff or constable. All birds, animals or fish seized by any officer, as herein provided shall be sold by said officer at a time and in a manner so as to receive the highest price therefor, and shall issue a certificate to the party purchasing the same certifying that the same was legally obtained and possessed, and any one so acquiring the same within this state shall have the right to deal therewith the same as if it had been killed and was possessed in accordance with the laws of this state, anything herein to the contrary notwithstanding and shall pay the money to the court before whom the person having the same in possession at the time of such seizure shall be prosecuted, and if the person from whom said birds, animals and fish were taken, is found guilty before said court of any violation of the fish and game laws of this state, said money shall be paid to the State Treasurer, and by him deposited into the fish and game fund, but should it be found that the party from whom the same was taken is not guilty of any violation of the game and fish laws of this state, said money shall be paid to the party from whom said birds, animals or fish were taken. No officer shall be liable for any damages on account of any search, examination, seizure or sale as herein provided for.

Accounts: Sec. 17. No warrant shall be issued for the amount to be paid to the State Game and Fish Warden, or any of the special deputy game and fish wardens appointed by him, by the Auditor of the State, until itemized accounts, properly verified, shall be presented by the person to whom the warrant is to be issued or until the same is certified to as correct by the Governor of the State. Upon the presentation of said accounts, duly verified and certified, as above, the State Auditor shall draw a warrant on the fish and game fund on the State Treasurer, in favor of the party or parties entitled thereto, for the amount so certified, and the same shall be paid out of said fund.

Report: SEC. 18. The State Game and Fish Warden shall make a semi-annual report to the Governor of all prosecutions instituted by himself and the different deputies during the six months prior to said report, and shall state in said report any and all information he may have obtained in regard to the condition of game and fish in the State of Montana, together with any information that may aid in protecting the fish and game of said state in the future.

Disposition of license fees: SEC. 24. All money received by the State Game and Fish Warden for the foregoing licenses [nonresident] shall be paid by him to the State Treasurer and by him placed to the credit of the Fish and Game Fund.

Laws of 1897, p. 249.

Prima facie evidence: SEC. 16. The possession of the dead bodies or any part thereof, of any of the birds or animals mentioned in this Act shall be prima facie evidence that such person or persons is or are guilty of killing the same.

Grand jury; Jurisdiction; Indians; Peace officers: SEC. 20. It shall be the duty of all grand juries to investigate all infractions of any of the provisions of this Act, except such cases and violations as have been tried by a court of competent jurisdiction, and upon due proof of violation of any of the said provisions, they shall proceed to indict such party or parties according to law, and it is hereby made the duty of the Judge of the District Court to call the attention of the Grand Jury to the provisions of this Act. The District Court shall have concurrent jurisdiction with the justices of the peace of all offenses committed under the provisions of this Act. And it is further provided that in construing this Act, the provisions and penalties hereinbefore made and prescribed shall be deemed and held to include all Indians and half breed Indians when outside the Indian Reservation. It is further provided and declared to be the duty of any sheriff, or peace officer of any county of this State, and the county attorneys of the respective counties when it shall come to their knowledge, or they shall have reason to believe that any person has violated any of the Sections of this Act, to commence criminal proceedings against them either in the Justice or District Court, as in their judgment shall be proper, and any failure on the part of any county attorney, sheriff or other peace officer, or game warden, who has knowledge of the violation of any of the provisions of this Act to commence such proceedings, shall be deemed a misdemeanor, and he shall be punished by a fine of not to exceed Five Hundred Dollars or by imprisonment in the county jail for not less than six months, or both such fine and imprisonment in the discretion of the court and shall forfeit his office.

Extradition: SEC. 23. Whenever it shall appear under any prosecution under any Section of this Act making it a felony for the violation thereof that the crime was committed, or that the game was killed or the fish caught in violation of law in any State other than Montana it shall be the duty of the magistrate or the court before whom the trial was had to hold said defendant for at least ten days, and for further time as may be necessary to allow the authorities of said State wherein the law has been violated to take the necessary steps to secure the arrest and extradition of the accused, if they so desire; and on the holding of the accused under the provisions of this Section, it shall be the duty of the county attorney, or attorney prosecuting to immediately notify the proper officers of this State and county in which it appears the law has been violated, of all the facts and circumstances connected with said proceeding.

Laws of 1903, chap. XI, p. 11.

Contraband game: SEC. 9. * * * All game shipped or had in possession in violation of any of the provisions of this Act may be seized, confiscated, and disposed of, as provided by law.

Guides: Sec. 10. * * * Every person acting as a guide in this State shall be a Deputy State Game and Fish Warden, and shall file with the State Game and Fish Warden his oath of office as such Deputy Game Warden, but shall receive no compensation from the State in any way for such services, other than the consideration above mentioned.

Responsibility: Sec. 11. Any person acting as a guide for any person or party shall be equally responsible with such person or party, for any violation of the law, any such guide who shall willfully fail or refuse to report any violation of the law, by the said person or party employing him, shall be liable to the penalties as hereinafter provided for.

Definition of guide: Sec. 12. Any person who shall, for pay, aid or assist any person or party, in locating, pursuing, hunting or killing any of the game birds or animals mentioned in this Act shall be deemed a guide within the meaning of this section.

Report by guide: Sec. 13. Whenever a guide is employed by any person or party, such guide shall at the expiration of the period of the time for which he was employed, make a written statement to the State Game and Fish Warden, stating the number of days he was employed, the number of persons guided, their names, residences, and the number of each kind of game killed, and if non-residents, the number of their license.

Laws of 1903, S. B. 90, p. 158.

Indians: Sec. 1. Any Indian who while off of, or away from, any Indian reservation, carries or bears, or causes to be carried or borne by any member of any party with which he may travel or stop, any pistol, revolver, rifle or other fire arm, or any ammunition for any fire arm, shall be guilty of a misdemeanor; and such arms shall be seized, confiscated and sold by the officers making the arrest and the proceeds of such sale shall be disposed of as follows: When seized and sold by an officer of the Stock Association the proceeds shall be sent to the state treasurer and by him placed to the credit of the stock inspector and detective fund; when seized and sold by a game warden, the proceeds shall be placed to the credit of the fish and game fund; and when seized and sold by any other peace officer, the proceeds shall be turned over to the county treasurer and placed to the credit of the general fund in which county the arrest was made.

Laws of 1905, chap. 52, p. 112.

Civil action: Sec. 10. All fines, bonds and penalties mentioned in any section of this act [protecting moose, bison, caribou, antelope and beaver at all times; fixing a close season on other game; limiting bag, etc.] may be collected by a civil action in the name of the state of Montana in any court of competent jurisdiction upon proper complaint being filed, and the amount of all fines and bonds collected under the provisions of this act shall be paid to the state treasurer and by him placed to the credit of the fish and game fund. All such fines, bonds and costs shall be collected without stay of execution, and the defendant, or defendants, may by order of the court be confined in the county jail of the county until such fine and costs are paid.

Approved Mar. 1, 1905.

Laws of 1905, chap. 57, p. 123.

Prima facie evidence: Sec. 3. * * * The possession of a gun or rod in the fields, or in the forests, or on or about the waters of this state by any non-resident of this state, without first securing the license required by this act, shall be prima facie evidence of the violation of its provisions, and any game warden or peace officer has the right to arrest any such party or parties without a warrant.

Disposition of license fees: Sec. 5. [Requires justices of the peace to remit on the last day of each month to the state treasurer funds collected from residents for licenses and at same time to notify the state game warden of the amount so remitted.]

Identification of license: Sec. 8. * * * If any game warden or other peace officer has reason to believe that a license is in the hands of a person other than the lawful licensee, such officer may require such party having the license to identify himself, and any such person refusing on such demand to identify himself, shall be guilty of a misdemeanor * * *

Moneys collected by deputies: Sec. 9. * * * All moneys collected by deputy game wardens shall be sent to the state game and fish warden and receipted for by him and he shall turn the same over to the state treasurer with other moneys collected by him as prescribed by law.

Export permits: Sec. 10. [State game warden required to collect fee of fifty cents for issue of export permits.] All money so received shall be turned over by him to the state treasurer at the time and in the manner prescribed by law and the state treasurer shall place such money to the credit of the fish and game fund.

Office clerk: Sec. 11. [As amended by sec. 3, chap. 139, Laws 1907.] The state game and fish warden shall have the right to employ an office clerk at a salary of twelve hundred ($1200.00) dollars per year, and said clerk shall be paid monthly by warrant drawn on the fish and game fund by the state auditor in the same manner as for the salary of deputy game and fish wardens.

Packers to be guides: Sec. 12. Any person who shall engage in the business of packing for hunting parties, as the term is commonly understood, or who shall for pay, accompany such party as guide, packer or cook, shall be considered a guide and shall come within the requirements provided for in Sections 10, 11, 13 and 14 of Senate Bill No. 30, approved February 21st, 1903; provided, however, it shall be necessary only for one of the persons above named, with each and every hunting party, to have fulfilled the requirements of this section.

Disposition of fish and game fund: Sec. 13. The state treasurer is hereby directed to keep all moneys now in the fish and game fund and all moneys placed hereafter in such fund for the payment only of the salaries and other expenses incurred by the game and fish warden's department.

Laws of 1907, chap. 142, p. 366.

Reports of special deputies: Sec. V. All Special Deputy State Game and Fish Wardens shall make out each day a report of all matters attended to and business transacted on said day and at the end of each week shall forward such report to the State Game and Fish Warden.

Additional special deputies: Sec. IX. The State Game and Fish Warden is hereby authorized and empowered to create four additional game and fish districts and to appoint and employ four additional Special Deputy Game and Fish Wardens whose duties and compensation shall be the same as is already provided for in House Bill No. 147, Session Laws 1901; such appointments may be made by the State Game and Fish Warden at any time as in his judgment the needs of the State may require.

Duties: Sec. X. No Special Deputy State Game and Fish Warden while holding such appointment or serving in such capacity shall engage actively in any other business, trade or profession, or perform any other duties other than those required for the proper fulfillment of his office.

NEBRASKA.[a]

Laws of 1901, chap. 36, p. 364.

ARTICLE I.

Game commission; Duties: SEC. 1. There is hereby created a game and fish commission for the State of Nebraska, which shall have the general charge of the following named public matters, viz:

1. The protection, propagation and breeding of such fish and game, song, insectivorous and other birds as may be deemed valuable to the people of the State.

2. The collection and distribution of such statistics and information as may be deemed useful respecting the protection and propagation of fish and game, song, insectivorous and other birds, and to take charge and preserve all books, records and documents pertaining to the subject which may come into the possession of said commission, or under its control.

3. [Fish.]

4. The enforcement of all laws of the State for the protection, preservation and propagation of fish and game, song, insectivorous and other useful birds.

Commissioner; Deputies; Compensation: SEC. 2. [As amended by Laws of 1905, chap. 74.] The affairs of said commission shall be conducted by a game and fish commissioner and such subordinates as are provided for in this act.

The Governor is hereby made the game and fish commissioner, and he is required within thirty days from the approval of this act, and every two years thereafter, to appoint two deputy game and fish commissioners, who shall hold office for a term of two years, or until their successors shall have qualified, and who may be removed by the Governor at any time for cause. One of said deputies shall be designated as the chief deputy, who shall reside in the City of Lincoln, and who shall, under the direction of the commissioner, devote his entire time to the affairs of this office. One of said deputies shall be skilled in the science of fish culture and shall under the direction of the commissioners have the control and management of all fish hatcheries of the State and the distribution of fish spawn and fry in the waters of the State. Said deputies shall receive compensation as follows:

The chief deputy shall receive a salary of one thousand and five hundred ($1,500) dollars per annum, payable quarterly, and the other deputy in charge of state fish hatcheries shall receive a salary of one thousand two hundred ($1,200) dollars per annum, payable quarterly, also their actual traveling and subsistence expenses, not exceeding $500 per year, when absent from their respective homes in the discharge of their official duties. Said commissioner shall also within thirty days from the approval of this act appoint, and may remove at his pleasure, three deputies who shall receive seventy-five ($75.00) dollars per month, payable monthly, for such time only as they shall be actually employed in the discharge of their official duties under the direction of the commissioner. They shall also receive their actual traveling and subsisting expenses not exceeding three hundred ($300.00) dollars per year, while absent from their respective homes in the discharge of their official duties. The commissioner may also at his pleasure in writing appoint for special purposes, deputies who shall serve for such special purposes without compensation such purposes being stated in the written appointment, and who shall have for such purpose the same powers as the deputies hereinbefore mentioned.

Office; Secretary; Compensation: SEC. 3. The commission shall be provided at the State Capitol with suitable furniture, stationery and other facilities for the transaction of its business. And the commissioner may appoint and remove at his pleasure, a secretary at a salary not exceeding seventy-five ($75) per month, payable monthly. Provided the commissioner may in his discretion require the chief deputy to act as secretary of said commission, in which case said deputy shall receive three hundred ($300) dollars, per annum, for such service, in addition to the salary herein provided.

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[a] Laws of 1907 not received.

Powers: Sec. 4. Said commissioner and his deputies are hereby made officers of the State with all of the powers of sheriffs and constables, while acting within the line of their official duties, with authority to make arrests and to serve all writs and processes, civil and criminal, in the enforcement of this act, and to charge therefor and collect the fees allowed by law for like services by sheriffs and constables.

Arrest; Seizure; Search: Sec. 5. The commissioner and deputy commissioner, and every sheriff and constable, in his respective county, is authorized and required to enforce this act and seize any fish or game, song, insectivorous, or other birds taken or held in violation of this act, and he shall have full power and authority, and it shall be the duty of every such officer, with or without a warrant, to arrest any person whom he has reason to believe guilty of a violation thereof; and with or without a warrant, to open, enter and examine all camps, wagons, cars, stages, tents, packs, warehouses, stores, outhouses, stables, barns, and other places, boxes, barrels, and packages where he has reason to believe any fish or game, song, insectivorous or other birds taken or held in violation of this act, is to be found, and to seize the same; provided that a dwelling house actually occupied can be entered for examination only in pursuance of a warrant.

Conveyance: Sec. 6. Where fish or game, song, insectivorous or other birds is [are] seized under this act, the officer making such seizure shall have authority, upon payment of reasonable compensation therefor, to also take possession of and use any animals and vehicles used in such transportation for the purpose of conveying the fish or game, song, insectivorous or other birds seized to a convenient railroad station or place of safe keeping for sale, and also for conveying any person arrested for the unlawful possession of such fish or game, song, insectivorous or other birds to a place of hearing or trial, and no liability shall attach to such officer by reason thereof, but this section shall not apply to any animal or vehicle while being used as a public conveyance for passengers or mails, or to any railroad car.

Civil action: Sec. 8. The commissioner may, if he so elect, bring and maintain a civil action in the name of the State for the possession of any fish or game, song, insectivorous or other birds, taken, killed or held in violation of this act, or for the value thereof, against any person in possession or exercising control over the same, and if required by the commissioner a writ of replevin shall issue therein without bond. No previous demand for possession shall be necessary. Neither the pendency of such action nor of a criminal prosecution for the same taking, killing or possession, shall be a bar to the other, nor shall anything in this section affect the right of seizure under the other provisions of this act.

Separate offense: Sec. 11. * * * a violation as to each individual animal or bird or part thereof shall be a separate offense, and two or more offenses may be charged in the same complaint, information or indictment, and proof as to a part of an animal shall be sufficient to sustain a charge as to the whole of it; and violations as to any number of animals or birds of the same kind may be charged in the same count and punished as a separate offense as to each animal.

Prima facie evidence; Production of license, etc.: Sec. 12. The possession at any time of fish or game, song, insectivorous or other birds unaccompanied by a proper and valid license, certificate, permit or invoice, as herein provided, shall be prima facie evidence that such fish or game, song, insectivorous or other bird was unlawfully taken and is unlawfully held in possession and it shall be the duty of every person having the possession or control of fish or game, song, insectivorous or other birds to produce the proper license, certificate, permit or invoice, when one is required by this act, on demand of any officer, and to permit the same to be inspected and copied by him.

Corporation: Sec. 14. In case of a violation of this act by a corporation, the warrant of arrest may be served on the president, secretary or manager in this state, or any general or local agent thereof in the County where the action is pending, and upon the return of such warrant so served, the corporation shall be deemed in Court and subject to the jurisdiction thereof, and any fine imposed may be collected by execution against the property of such corporation, but this section shall not be deemed to exempt any agent or employe from prosecution.

Publishing laws: Sec. 16. The commissioner shall publish in pamphlet form for distribution the laws relating to game and fish at a cost not exceeding $300. And he shall have power to prescribe such rules, regulations and forms as may be required to carry out the true intent and purpose of this act and not inconsistent therewith.

Article II.

Title not involved in trespass case: Sec. 2. No person shall shoot on or from a public highway at any game, song, insectivorous or other bird or fish or hunt game on any land not public land, without the consent of the owner or persons in charge of the same, nor fish or hunt in any private park, lake or preserve without the consent of the proprietor or person in charge of the same, and no question of ownership, proprietorship or charge shall defeat a prosecution unless it appears that the accused in good faith has heretofore claimed and at the time of the commission of this act complained of [or] claimed to be such owner, proprietor or to have such charge, or to have had the consent of the owner, proprietor or person in charge, and shall establish such claim.

Laws of other States: Sec. 14. * * * it shall be the duty of the state fish and game commissioner of this state or his deputy to seize, hold and dispose of, according to the laws of this state, any fish or game brought into or shipped into this state, or carried through, or attempted to be carried through this state, prohibited to be so shipped or transported by the laws of any other state, and further to dispose of the same according to the laws of this state. * * *

Civil action; Prima facie evidence: Sec. 15. [Penalty for illegal transportation of game to be recovered in a civil action brought in the name of the state fish and game commissioner or one of his deputies, and possession of game in close season for shipment or transit is prima facie evidence of violation of law.]

Disposition of confiscated game: Sec. 17. * * * Provided that game and fish confiscated under the provisions of this act shall be delivered to one or more of the public institutions for the care of the unfortunate or other charitable institutions. * * *

Prima facie evidence: Sec. 18. The naming of game or fish upon any such menu as food for patrons shall be prima facie evidence of the possession of the same by the proprietor of such hotel, restaurant, cafe or boarding house. * * *

Article III.

Illegal appliances; Nuisances: Sec. 1. Every net, seine, trap, explosive, poisonous or stupefying substance or device used or intended for use in taking or killing game or fish in violation of this act, is hereby declared to be a public nuisance and may be abated and summarily destroyed by any person, and it shall be the duty of every such officer authorized to enforce this act to seize and summarily destroy the same, and no prosecution or suit shall be maintained for such destruction; provided, that nothing in this division shall be construed as affecting the right of the commissioner to use such means as may be proper for the promotion of game and fish propagation and culture. * * *

ARTICLE IV.

Disposition of fines; Informers: SEC. 5. * * * All fines recovered under any of the provisions of this act shall, when collected, be paid into the treasury of the county for the use of the school fund, and the corporate authorities of any county, city or village, within whose territiorial jurisdiction such fine was recovered, when such fines are collected, shall pay to the complaining witness in such prosecution, out of the general fund of such county receiving such fine, an amount equal to one-half of the fine actually collected, upon the proper application of the party entitled to the same, in the manner usual for the presentation of claims against counties.

Disposition of license fees: SEC. 7. All monies derived from licenses and permits issued pursuant to this act shall by the state treasurer be paid over for the use of the school fund of the state.

Prosecutions; County attorneys; Peace officers: SEC. 9. Prosecutions may be brought by any person or persons in the name of the State of Nebraska, against any party or parties violating any of the provisions of this act, before any Justice of the Peace or County Judge of the County in which said violation is charged to have taken place, or before any Court of competent jurisdiction; and it is made the duty of all County Attorneys of this State to see that the provisions of this act are enforced in their respective counties, and they shall prosecute all offenders on receiving information of the violation of any of the provisions of this act; and it is made the duty of all sheriffs, deputy sheriffs, constables and police officers, to inform against and prosecute each and every party or parties, person or persons, whom there is reasonable or probable cause to believe are guilty of violating any of the provisions of this act. Any county attorney, sheriff, deputy sheriff, constable or police officer who shall fail, neglect or refuse to discharge the said duties hereby imposed on such officers, respectively, shall be deemed guilty of a misdemeanor, and on conviction be fined not less than twenty-five dollars nor more than one hundred dollars, for each offense.

Approved March 23, 1901.

NEVADA.[a]

Laws of 1901, Chap. XLVIII, p. 57.

Game warden; Bond: SEC. 1. It is hereby made the duty of the several Boards of County Commisssoners in this State, at their first regular meeting in April, nineteen hundred and one, and annually thereafter, upon the petition of twenty or more resident taxpayers, to appoint a Fish and Game Warden for their respective counties, who shall reside in the county for which he is appointed. Each Warden so appointed, before entering upon the duties of his office, shall take his oath of office, and give an undertaking to the State of Nevada for the use of the respective counties thereof, with two or more sureties, to be approved by the Board of County Commissioners conditionally [conditioned] for the faithful performance of his duties, and in such sum as the County Commissioners of the several counties may deem sufficient for the faithful performance of the duties of his office and the enforcement of the requirements of this Act.

Duties; Powers; Responsibility: SEC. 2. Said Warden is hereby empowered [and it shall be his duty] to enforce the State laws and all county and municipal ordinances relative to the protection of fish and game; and he shall be vested with the power to make arrests for the violation of such laws and ordinances in any county in this State; to appoint a deputy or deputies who shall have power to transact all official business appertaining to said officer, to the same extent as their principal; provided, that said Warden shall be responsible for the compensation of such deputy or deputies, and shall be responsible on his official bond for all malfeasance or nonfeasance of the same. Bonds for the faithful performance of the duties of his official deputy or deputies may be required of said deputy or deputies by said principal.

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[a] Laws of 1907 not received.

Reports; Removal: Sec. 3. Said Fish and Game Warden shall report quarterly to the Board of County Commissioners of his county, giving a detailed statement of all arrests made, convictions secured, fines collected, and generally in regard to the management of his office. Such officers may be removed by the Board of County Commissioners for intemperance, neglect of duty or other good and sufficient reasons.

Salary: Sec. 4. [As amended by Laws of 1903, chap. 98.] The salary of said Fish and Game Wardens shall be fixed by the County Commissioners of the various counties of this State and paid out of the General Funds of their respective counties; provided, that the salary of such Fish and Game Wardens shall not exceed $20 per month.

Approved March 12, 1901.

NEW HAMPSHIRE.

Acts of 1901, chap. 79, p. 567.

Fish and game commissioners: Sec. 1. The governor, with the advice of the council, shall appoint a board of fish and game commissioners not exceeding three in number, who shall hold office for five years unless sooner removed. The board as now constituted is continued.

Restocking: Sec. 2. The commissioners shall enforce the fish and game laws, shall take the necessary measures for restocking or introducing any desirable fish into the waters of this state, and they may cooperate with the commissioners of other states, having joint interests with this state, for that purpose.

Special detectives: Sec. 8. The fish and game commissioners may, whenever they deem it necessary, and shall, upon the request of three reputable citizens, appoint one or more persons to act as special detectives in cases of prosecution relating to fish and game. The compensation of such detectives shall be fixed by said commissioners and paid from the fish and game detective fund.

Confiscation: Sec. 9. All fish and game found in the possession of any person or persons who have illegally taken the same shall be confiscated by the fish and game commissioners and sold by them, or under their direction, to the best advantage, and the proceeds of such sale added to the fish and game detective fund in the state treasury.

Reports; Publishing laws: Sec. 10. [As amended by Laws of 1903, chap. 77.] The fish and game commissioners shall file with the secretary of state, on or before the first day of December, in each alternate year, a report to the governor and council of all their doings, together with a statement of all their expenses. They shall compile and issue at the close of each session of the legislature a pamphlet edition of the fish and game laws, with the session amendments, suitably indexed, said edition not to exceed ten thousand copies, and a synopsis of such laws printed on cloth not to exceed one thousand copies.

Compensation: Sec. 11. [As amended by Laws of 1903, Chap. 11.] Said commissioners shall be paid their traveling and other expenses necessarily connected with the discharge of their duties, and the chairman of the board shall receive as compensation for his services the sum of one thousand dollars per annum, and the two remaining members the sum of eight hundred dollars each per annum.

Fund: Sec. 12. All fines and forfeitures accruing from prosecutions for violation of the fish and game laws shall be paid into the state treasury and placed to the credit of the fish and game commissioners, and be known as the fish and game detective fund, and may be drawn and used by said commissioners from time to time as to them may seem necessary, with the approval of the governor and council.

Powers: Sec. 13. The fish and game commissioners, their deputies and detectives, in the performance of their duties shall have the powers of constables, and shall also have authority to arrest, on view, within the limits of the state, any person violating any of the fish and game laws.

Prima fâcie evidence: Sec. 30. If any person shall at any time have in his possession the carcasses or hides of any moose, caribou, elk, or fawn, or the parts thereof, or the carcasses or hides or parts thereof of more than two deer, in the open season on deer, or the carcasses or hides or parts thereof of any deer when it is unlawful to take or kill deer, or the carcasses or hides or parts thereof of any other animal mentioned in this act when it is unlawful to take or kill such animal, it shall be *prima facie* evidence that such person has hunted and killed the same contrary to law.

Special regulations: Sec. 33. [Fish and game commissioners shall prescribe rules and regulations for transporting out of the state game animals legally killed on the Blue Mountain Forest Preserve.]

Approved March 20, 1901.

Laws of 1905, chap. 38, p. 428.

An act to require non-residents to procure a license to hunt.

Production of license: Sec. 4. No license shall be valid unless the signature of the person to whom it is issued is written thereon, and every such person shall at all times when hunting carry his license on his person, and shall at all reasonable times and as often as requested produce and show such license to any person requesting him so to do, and if he fails or refuses to do so he shall forfeit such license and be deemed to be hunting in violation of the provisions of this act.

Arrest of licensee: Sec. 9. The fish and game commissioners and the detectives in their employ shall have the right, after demand and refusal or failure to exhibit such license, to arrest without warrant any non-resident person or persons found hunting, pursuing or killing any wild animal, wild fowl or bird, and for the purpose of this arrest any person who shall refuse to state his name and place of residence on demand of such officer shall be deemed a non-resident.

Disposition of license fees: Sec. 10. The fee for the license provided for in the preceding sections of this act shall be ten dollars, the money received by the commissioners for the issuance thereof shall be turned over to the state treasurer, who shall credit the same to the detective fund, so called, to be expended as otherwise provided for by law and under the same supervision as any other moneys belonging to the said fund.

Approved March 1, 1905.

Laws of 1905, chap. 98, p. 515.

An act to prohibit the use of swivel and punt guns.

Confiscation of big guns: Sec. 1. If any person shall, at any time, within this state, hunt, pursue, shoot at, or kill any game bird, as defined by section 34 of chapter 79 of the Laws of 1901, with any punt-gun, swivel-gun, or other gun not fired from the shoulder, or of larger bore than ten-gauge, he shall be fined not more than ten dollars for each offense and shall forfeit all guns and implements with which the offense was committed. And all guns and implements so used shall be seized by any detective, constable or police officer and shall be destroyed by the person seizing them.

Approved March 10, 1905.

NEW JERSEY.

Acts of 1895, Chap. CCXXIV, p. 440. (Gen. Stats., vol. 2, p. 1562.)

Fish and game commissioners: Sec. 1. That the present commissioners of fisheries of this state and their successors shall hereafter be known and designated as "The board of fish and game commissioners", and that after the expiration of the terms of the respective members of the present board, said board shall be appointed by the governor of this state with the advice and consent of the senate, and shall be constituted of four competent persons, who shall hold office for five years, and until their successors are duly appointed and qualified; vacancies occurring by death, resignation or otherwise shall be filled in the same manner and for the unexpired term of the commissioner whose office shall become vacant; *provided*, that no appointment shall be made by reason of which more than two of the said commissioners shall be of the same political party.

Duties; Powers; Reports: Sec. 2. That the duties of the said board shall be the protection and propagation of fish, birds and game animals and enforcement of the law relating thereto, * * * , and [said board] shall have power, on view or information, to enforce the laws for the protection and propagation of fish, birds and game animals within this state, by arrest and prosecution of the offender or offenders, without warrant or complaint, and shall make a full report to the legislature annually, at the meeting thereof, for the year ending on the thirtieth day of November preceding, of all their official operations, with such suggestions and recommendations as they shall deem useful.

Wardens; Bond; Compensation: Sec. 3. That the said board of fish and game commissioners shall appoint twenty-five[a] competent men, who shall be known as fish and game wardens, whose powers and duties are hereinafter defined, and who shall hold office for one year, or during the pleasure of the said board, and who shall be subject to summary removal by the said board without notice; the said board shall from time to time designate one of said wardens as the fish and game protector, who shall hold such office during the pleasure of the said board and who shall, under the supervision of this board, have the direction, supervision and control of the other fish and game wardens; the fish and game protector shall give a bond to the said board with sureties in the penal sum of one thousand dollars, and each of said wardens shall give to said board a bond with sureties, in the penal sum of five hundred dollars, conditioned for the faithful discharge of his duties, such bond to be approved by the commissioners, and upon default an action thereon shall be brought in the name of the state; the compensation of the fish and game protector shall be one hundred dollars per month, payable monthly, and he shall be allowed for the expenses in the performance of his duties the sum of three hundred dollars per annum; the compensation of the said wardens shall be at the rate of fifty dollars per month each, payable monthly, and an allowance to each for expenses not exceeding two hundred dollars per annum; the payment of traveling and incidental expenses of said fish and game wardens shall be made upon the statement of said fish and game protector, duly sworn to by him, that the charges for which payment is asked have been incurred in the discharge of official duties, and that the bill is true and correct; such bill so certified to by the said fish and game protector shall be approved of by the said board before payment.

Duties; Powers; Reports: Sec. 4. That the fish and game wardens shall enforce all the laws of the state for the protection of fish, birds and game animals, and shall have full power to execute all processes issued for the violation of such laws and to serve subpoenas issued for the examination, investigation or trial of all offences against said laws; each fish and game warden shall keep a daily record of his official acts, and shall at the close of each month make a summary of such record with such statements in detail as shall be necessary for the information of the said board, and report the same to the said board; the fish and game protector shall report to the said board any negligence or dereliction of duty or incompetency on the part of any of the said wardens, with the facts relating thereto, and he shall report monthly to said board the operation of his department during the preceding month, and make such further report as may be required by the said board; * * *

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[a] See Act of 1896, sec. 1.

Peace officers: Sec. 5. That the said board of fish and game commissioners and the fish and game wardens and the fish and game protector may, in the discharge of their duties, call in the aid of any constable, sheriff or other peace officer of this state when deemed necessary; and any such officer neglecting or refusing to aid when thus required shall forfeit twenty-five dollars, to be recovered by action of debt; they shall also have the power of summary arrest in cases of flagrant violation of the fishing or the game laws of this state.

Approved March 22, 1895.

Acts of 1896, chap. 130, p. 185.

Deputies: [Sec.] 1. The board of fish and game commissioners is hereby authorized to appoint such deputy fish and game wardens as such board may deem necessary for the better enforcement of the laws regulating the taking of fish, game and birds.

Powers; duties; compensation: [Sec.] 2. Such deputy fish and game wardens shall have all the powers and authority conferred by the laws of this state on fish and game wardens of the state, and shall be entitled to all the fees and emoluments of such office of fish and game wardens, and shall be subject to the regulations provided by law for such fish and game wardens; provided, however, that such deputy fish and game wardens shall receive no salary or other compensation from the state.

Acts of 1897, chap. 171, p. 340.

Wardens' compensation: [Sec.] 1. The board of fish and game commissioners of this state is hereby authorized and required, at its first meeting after the passage of this act, to fix the annual allowance for expenses of the fish and game protector and the fish and game wardens, and may at any meeting thereafter, for good cause appearing to them, alter such allowance; *provided, however*, that such allowance for expenses shall not in any year exceed the total amount appropriated by the legislature for that purpose.

Appropriations: Sec. 2. All moneys appropriated for the compensation of the fish and game protector, the fish and game wardens and the general and incidental expenses of the board of fish and game commissioners shall be paid by the treasurer of this state, on the warrant of the comptroller, to the treasurer of such board of fish and game commissioners, in equal monthly instalments on the first day of each month.

Approved May 4, 1897.

Acts of 1897, chap. 41, p. 109.

Enforcement of laws: [Sec.] 1. All laws general and special, for the protection of fish, game and birds, or in any manner prohibiting or regulating the taking or possession of the same, shall hereafter be enforced and all penalties for violations thereof shall hereafter be recovered in accordance with the provisions of this act.

Jurisdiction: [Sec.] 2. [As amended by Laws of 1905, chap. 86.] Justices of the peace, district courts and police magistrates shall have jurisdiction to try and punish any person or persons, corporation or corporations, accused of violating any of the laws specified in the first section of this act, or any of the provisions thereof, and every penalty prescribed for such violation may be enforced and recovered before any justice of the peace, district court or police magistrate, either in the county where the offense is committed or where the offender is first apprehended or where he may reside; and nothing contained in any law heretofore passed shall be construed to prohibit justices of the peace residing within the limits of any city where a district court is or may be established from exercising jurisdiction under this act.

Arrest; Trial; Commitment: [Sec.] 3. Such justice of the peace, district court or police magistrate, upon receiving complaint in writing, duly verified, of the violation of any law specified in the first section of this act, or of any of the provisions thereof, is hereby authorized and required to issue a warrant, directed to any constable, police officer, fish and game warden, fish and game protector, or deputy fish and game warden of this state commanding him to cause the person or persons so complained of to be arrested and brought before such justice, district court or police magistrate, and shall thereupon, in a summary way, hear and determine the guilt or innocence of such person or persons, and, upon conviction, shall impose upon the person or persons so convicted the penalty or penalties prescribed, together with the cost of prosecution, for such offense, and if any person or persons shall fail to pay the penalty or penalties so imposed together with the costs of prosecution, the said justice, district court or police magistrate shall commit him or them to the common jail of the county where such conviction is had, for a period not exceeding ninety days, or until said penalty and costs are paid.

Corporations: [Sec.] 4. Such justice of the peace, district court or police magistrate, upon receiving complaint in writing, duly verified, of the violation of any law specified in the first section of this act, or of any of the provisions thereof, by any corporation or corporations, is hereby authorized and required to issue a summons directed to any constable, police officer, fish and game warden, fish and game protector, or deputy fish and game warden of this state requiring such corporation or corporations to be and appear before such justice of the peace, district court or police magistrate on a day therein named, to answer the said complaint, which said summons shall be served on the president, vice-president, secretary, superintendent or manager of such corporation at least five days before the time of appearance mentioned therein, and thereafter all proceedings shall be the same as in cases against individuals, except where a different procedure is provided by this act.

Arrest; Complaint; Trial: [Sec.] 5. For the violation of any law specified in the first section of this act, or of any of the provisions thereof, done within the view of any constable, police officer, fish and game warden, fish and game protector, deputy fish and game warden, or an officer or member of any incorporated game protective society, such officer is hereby authorized, without warrant, to arrest the offender or offenders and to carry him or them before a justice of the peace, district court or police magistrate of the county where such arrest is made, and the justice, district court or police magistrate before whom such offender or offenders shall be taken is hereby authorized and required to hear and determine in a summary way the guilt or innocence of such person or persons, after receiving from the said officer a complaint in writing, duly verified, setting forth the nature of the offense for which the said person or persons was or were arrested.

Fees; costs: [Sec.] 6. In any action commenced under the provisions of this act the prevailing party shall recover costs against the other; and the same fees and costs shall be allowed therein as in trials before justices of the peace holding court for the trial of small causes.

Adjournment: [Sec.] 7. Any hearing to be held pursuant to this act may, for good cause shown, be adjourned for a period not exceeding thirty days from the return of any warrant of the time of appearance mentioned in any summons, or from the date of any arrest without warrant, as the case may be, but in such case it shall be the duty of the justice, district court or police magistrate to detain the defendant or defendants in safe custody unless he or they shall enter into bond to the person making the complaint, with at least one surety in double the amount of the penalty to be recovered, conditioned for his or their appearance on the day to which the hearing shall be adjourned, and thence from day to day until the case is disposed of, and then to abide by the judgment of the justice, district court or police magistrate, provided no appeal therefrom be taken, and such bond, if forfeited, may be prosecuted by the person to whom it is given in any court of competent jurisdiction.

Disposition of fines: [Sec.] 8. All moneys recovered pursuant to the provisions of this act shall be paid in each case to the person making the complaint, who shall pay one-third thereof to the fish and game protector for the use of the board of fish and game commissioners, and one-third thereof in equal proportions to the persons furnishing the evidence necessary to secure a conviction.

Appeal: Sec. 9. Any party to any proceeding instituted under this act may appeal from the judgment or sentence of the justice, district court or police magistrate, to the court of common pleas of the county in which the said proceedings take place; *provided*, that the party appealing shall within ten days after the date of the said judgment serve a written notice of appeal upon the opposite party, pay the costs of such proceedings, and deliver to the justice, district court or police magistrate a bond to the opposite party, in double the amount of the judgment appealed from, with at least one sufficient surety, conditioned to prosecute the said appeal and to stand to and abide by such further order or judgment as may hereafter be made against said party.

Proceedings on appeal: Sec. 10. [As amended by Laws of 1905, chap. 86.] Whenever an appeal shall be taken as aforesaid, it shall be the duty of the justice of the peace, district court or police magistrate to send all papers, together with a transcript of the proceedings in the case, to the next term of the court of common pleas of the said county, which court shall hear and determine such appeal in the same way and manner as said case was heard and determined by such justice of the peace, district court or police magistrate.

Powers; Fees: Sec. 11. The duly appointed fish and game protector, fish and game wardens, and deputy fish and game wardens of this state shall have the same power and be entitled to the same fees for the services of process in cases instituted under this act as constables have and are entitled to receive in the courts for the trial of small causes.

Witness: Sec. 12. No person shall be excused from giving evidence in any action or proceedings taken or had under this act, on the ground that such evidence might tend to convict such witness, or render him liable to prosecution under this act, but such evidence shall not be received against such witness in any such prosecution.

Judgment: [Sec.] 14. Any judgment obtained under the provisions of this act against a corporation may be docketed in the office of the clerk of the circuit court in and for the county in which such judgment shall be obtained, and like proceedings shall be had for the collection of the same as if the said judgment had been rendered in the said court.

Sunday: [Sec.] 15. Proceedings under this act may be instituted on any day of the week, and the institution of such proceedings on Sunday shall be no bar to the successful prosecution of the same, and any process served on Sunday shall be as valid and effectual as if served on any other day of the week.

Proceedings: [Sec.] 16. All proceedings for the recovery of penalties pursuant to the provisions of this act shall be entitled and shall run in the name of the state of New Jersey, with one of the fish and game wardens of the state, or a deputy fish and game warden, or a police officer, or a constable, or a member of any regularly incorporated fish and game protective association, or the fish and game protector as prosecutor, and no proceedings shall be instituted by any person not a duly commissioned fish and game warden, or a deputy fish and game warden, or a police officer, or a constable, or a member of any incorporated fish and game protective association, or the fish and game protector of this state.

Approved March 29, 1897.

Acts of 1902, chap. 207, p. 657.

Search; Seizure; Disposition of game; Nonliability: SEC. 1. The fish and game commissioners, the fish and game protector and the fish and game wardens of this state shall have power, without warrant, to search and examine any boat, conveyance, vehicle, fish-box, fish-basket, game-bag or game-coat, or other receptacle for game and fish, when they have reason to believe that any of the laws for the protection of game and fish have been violated; and the said fish and game commissioners, fish and game protector and fish and game wardens shall, at any time, seize and take possession of any and all birds, animals or fish, which have been caught, taken or killed at any time in a manner or for a purpose, or had in possession or under control, have been shipped or are about to be shipped, contrary to any of the laws of this state; justices of the peace, district courts and police magistrates, upon receiving proof of probable cause for believing in the concealment of any bird, animal or fish caught, taken, killed, had in possession, under control or shipped, or about to be shipped, contrary to law, shall issue a search warrant and cause a search to be made in any place, and to that end may, after demand, and refusal, cause any building, enclosure or car to be entered, and any apartment, chest, box, locker, crate, basket or package to be broken open and the contents thereof examined by said fish and game commissioners, fish and game protector or fish and game wardens; all birds, animals or fish, or net or fishing appliance or apparatus, seized by the fish and game commissioners, fish and game protector or any of the fish and game wardens, shall be disposed of in such manner as may be directed by the justice of the peace, district court or police magistrate before whom the offense is tried; and such fish and game commissioners, fish and game protector or fish and game wardens shall not be liable for damages on account of any such search or the destruction of any nets or fishing apparatus of any kind in accordance with the provisions of this act.

Pleadings: SEC. 2. [No further pleadings than the filing of complaint and issuing of warrant shall be necessary on the part of the prosecutor; said complaint shall specify the section and the title of the act charged to have been violated, and the time and place of violation.]

Approved April 9, 1902.

Acts of 1902, chap. 263, p. 780.

License: SEC. 1. [Requires nonresidents to procure hunting licenses. Fee $10.]

Production of license; Arrest; Seizure; Sale of implements: SEC. 2. Any game protector or game warden shall have the right, after demand and refusal or failure to exhibit such certificate, to arrest, without warrant, any non-resident person or persons found hunting, or whom said protector or warden shall have reasonable cause to believe to have been hunting within this state (and for the purpose of this arrest any person who shall refuse to state his place of residence, upon demand of such officer shall be deemed a non-resident) and to take him or them forthwith before any justice of the peace, district court or police magistrate of the county where the arrest is made and to proceed against him or them in the manner prescribed by an act of the legislature of this state, [Act of 1897] and also to seize any and all gun or guns or shooting paraphernalia in the possession of such person or persons so arrested, and to hold the same subjected to the payment of the fine or fines which shall be imposed upon such person or persons, together with the costs of prosecution; and in case such person or persons shall be convicted and shall fail to make payment of the said penalty and costs within ten days from the date of such conviction, to sell the same at public auction and apply the funds thus realized first to the payment of the said costs and the balance thereof, if there be any, to the payment of the penalty imposed; and should any balance still remain to pay the same to the owner of the property so seized.

Nonliability: Sec. 3. No game protector or game warden shall be liable for damages on account of any such arrest, seizure or sale in accordance with the provisions of this act.

Approved April 22, 1902.

Acts of 1903, chap. 246, p. 526.

Prima facie evidence: Sec. 8. [As amended by Laws of 1904, chap. 231.] * * * and the having in possession of any such goose, duck, swan, brant or other water wild fowl during the period prohibited in this section [May 1–Sept. 1] shall, in every court and place, be deemed prima facie evidence that the same are unlawfully in possession.

Prima facie evidence: Sec. 16. [As amended by Laws of 1906, chap. —] * * * and the having in possession of any such deer during the times and periods prohibited in this act [until Nov. 10, 1909] shall be prima facie evidence in all courts and places of the fact that they are in possession unlawfully.

Approved April 14, 1903.

Acts of 1905, chap. 87, p. 184.

Conviction: [Sec.] 1. The conviction in prosecutions under the act [1897, chap. 41] to which this is a supplement shall be in the following or similar form:

State of New Jersey, }
County of ———, } *ss.*

Be it remembered, that on this —— day of ———, A. D. nineteen hundred and ——, at ——— in said county, ——— ——— defendant, was, by ——— one of the justices of the peace in and for said county (or by the district court or police magistrate, as the case may be), convicted of violating the —— section of an act of legislature of said state entitled "An act for the protection of certain kinds of birds, game and fish, to regulate their method of capture and provide open and close seasons for such capture and possession (Revision of 1903)," approved April fourteenth, nineteen hundred and three (or if violation be of a supplement or amendment, then state title of act and date of approval), in a summary proceeding at the suit of ——— ———, one of the fish and game wardens of said state, plaintiff (or as the case may be), upon complaint made by ——— ———; and further, that the witnesses in said proceeding who testified for the plaintiff were (name them), and the witnesses who testified for the defendant were (name them); whereupon said justice of the peace (or district court or police magistrate, as the case may be) doth hereby give judgment that the plaintiff recover of the defendant, ——— ———, penalty and ——— costs of this proceeding.

Said conviction shall be signed by the justice of the peace, judge of the district court or police magistrate before whom the conviction is had.

Approved March 31, 1905.

NEW MEXICO.

Laws of 1903, chap. 48, p. 74.

Game warden; Bond; Salary: Sec. 1. Within thirty days after the passage of this act, there shall be appointed by the governor of the territory of New Mexico, an officer to be known as the game and fish warden of the Territory of New Mexico, whose term of office shall be two years and until his successor shall be appointed and qualified, and whose duties shall be prescribed by this act. [Warden must take oath of office and give bond of $2,000.00, and is allowed salary of $1800.00 per annum payable as are salaries of other territorial officers.]

Deputies; Compensation; Duties; Powers: SEC. 3. Such game and fish warden shall have the power to appoint deputies in each county in this territory, and to remove the same from office, who shall be residents of the county for which they were appointed, and who shall be specially charged with the duty of enforcing the fish and game laws of the Territory of New Mexico in their respective counties, and such deputies shall receive in full compensation for their services, one-half of all fines[a] imposed upon prosecutions procured or instituted by them, and convictions secured thereunder, for violation of the game and fish laws of this territory, and each deputy so appointed shall qualify by filing with the game and fish warden of the Territory of New Mexico, an oath of office now prescribed by law for territorial officers. It shall be the duty of the game and fish warden of the Territory of New Mexico and of each and every deputy within his county, rigidly and strictly to care for and enforce the provisions of this and all other laws of the Territory of New Mexico for the protection of game and fish of whatsoever kind or description, and to institute and cause the institution of prosecutions for any and all violations of such laws, and to that end such game and fish warden and each and every of his deputies within their respective counties as aforesaid, are hereby authorized and required to arrest, or cause [to] be arrested, all violators of such laws, and to lodge accusations against them in a court of competent jurisdiction in the premises; to gather evidence on behalf of the prosecution of such offenders, and to do any and all things necessary to the punishment hereunder and under the laws of the Territory of New Mexico of any violations of this or any other law of said territory on the subject of fish and game and the protection thereof. [Warden or deputies liable to punishment and removal from office for failure to enforce the law.]

Approved March 12, 1903.

NEW YORK.

Laws of 1901, chap. 94.

Commissioner; Deputy; Compensation; Bond: [SEC.] 1. The forest, fish and game commission shall, except as in this act otherwise provided, consist of a single commissioner who shall have all the powers and duties now possessed by such commission or any member or members thereof. He shall be appointed by the governor by and with the advice and consent of the senate within ten days after the passage of this act. The term of office of such commissioner and his successors in office shall be four years, and in case of vacancy in the office, the appointment shall be to fill the vacancy. He shall receive an annual salary of five thousand dollars and the expenses necessarily incurred by him in the discharge of his official duties. Said commissioner shall after January first, nineteen hundred and three, appoint a deputy commissioner who shall receive an annual salary of two thousand five hundred dollars and the expenses necessarily incurred by him in the diacharge of his official duties. During the absence or inability to act of the commissioner, the deputy commissioner shall have and exercise all the powers of the commissioner. The commissioner and deputy commissioner shall each execute and file with the comptroller of the state a bond to the people of the state in the sum of ten thousand dollars with sureties to be approved by the comptroller, conditioned for the faithful performance of his duties and to account for and pay over pursuant to law, all moneys received by him in his office. The commissioner and deputy commissioner shall take and subscribe the constitutional oath of office. The deputy commissioner may be

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[[a] The other half to be paid into the county treasury for the school fund of the county.]

removed by the commissioner who may in like manner appoint as uccessor. The terms of office of the commissioners of forest, fish and game now in office, shall terminate upon the appointment and qualification of such commissioner.

Laws of 1900, chap. 20.

ARTICLE VIII.

Office; Secretary; Superintendent of forests; Clerk: [SEC.] 154. [As amended by Laws of 1906, chap. 206.] The commission shall have an office in the capitol at Albany, * * *. The commission may appoint a secretary and a superintendent of forests and fix their compensation, * * * and such other clerical assistants as are actually needed.

Powers; Duties: [SEC.] 155. The commission shall have charge of * * * the enforcement of laws for the protection of fish and game and the forests * * * and such other powers and duties as are or may be imposed upon them by law.

Report: [SEC.] 163. [Commission required to report annually to the legislature.]

Compilation of forest, fish and game law: SEC. 164. [Added by Laws of 1907, chap. 282.] As soon as practicable after the adjournment of the legislature in each year, the forest, fish and game commissioner shall make a compilation of the forest, fish and game law, as amended at the date of such compilation, and properly index the same. Twenty-five thousand copies of said compilation shall be printed in pamphlet form of pocket size, under the direction of the clerks of the senate and assembly, and said clerks shall distribute them as follows: One hundred copies to each senator, fifty copies to each assemblyman, and the balance to the forest, fish and game commissioner for distribution.

ARTICLE IX.

Game protectors: [SEC.] 170. [As amended by Laws of 1907, chap. 519.] The commission shall appoint 75 game protectors. One shall reside in each of the counties of Essex, Clinton, Franklin, Saint Lawrence, Jefferson, Lewis, Herkimer, Hamilton, Warren, and Washington and the next eight protectors shall be appointed from said counties. The protectors and assistant protectors shall hold office during the pleasure of the commissioner and the commissioner shall from time to time designate from the protectors a chief game protector and a first, second and third assistant game protector, two oyster protectors, an assistant oyster protector and a protector for the Saint Lawrence River. The commissioner shall also appoint some proper person to be a special assistant oyster protector who shall reside in the borough of Manhattan, City of New York and shall have the same powers, duties and functions as the assistant oyster protector hereinbefore provided for. The chief game protector shall have general supervision and control of all inspectors.

Bonds: [SEC.] 171. [Bond of Chief Game Protector $1,000; other protectors $500.]

Compensation: [SEC.] 172. [As amended by Laws of 1906, chap. 206.] The chief game protector shall receive an annual salary of two thousand dollars a year and his actual and necessary traveling expenses while in the discharge of his official duties, not exceeding one thousand dollars a year. Any chief game protector who has served as such for upward of five years may by order of the commissioner receive a salary of two thousand five hundred dollars. The first assistant chief protector shall receive one thousand four hundred dollars a year and during such time as he shall be required by the commissioner to reside constantly in Albany he shall receive an additional salary at the rate of fifty dollars per month together with his necessary traveling and incidental expenses while absent from the city of Albany in the discharge of his official duties. The second and third assistant chief protectors shall each receive twelve hundred dollars a year and their necessary traveling and incidental expenses while in the discharge of their official duties not exceeding seven hundred and fifty dollars a year. * * * Other protectors including the special assistant oyster protector, shall receive six hundred dollars a year and an allowance for expenses not exceeding four hundred and fifty dollars a year. Each of said protectors shall receive one-half of the fines and penalties less the expenses of recovering the sum collected in actions brought upon information furnished by him.

Duties; Powers: [Sec.] 173. [As amended by Laws of 1905, chap. 285.] Game protectors shall enforce all laws relating to fish and game; all laws of boards of supervisors relating to the same; and shall have power to execute all warrants and search warrants issued for a violation of the forest, fish and game law; to serve a summons issuing from justices' court; to serve subpœnas issued for the examination and investigation or trial of offenses against any of said laws; to make search where they have cause to believe that fish or game is possessed in violation of law, and without search warrant to examine the contents of any boat, car, box, locker, basket, creel, crate, gamebag or other package, and the contents of any building other than a dwelling house, to ascertain whether any of the provisions of this act or of any law for the protection of fish, shellfish, and game have been violated, and to use such force as may be necessary for the purpose of such examination and inspection; and with a search warrant to search and examine the contents of any building or dwelling house; to arrest without warrant any person committing a misdemeanor under the provisions of this act in their presence and take such person immediately before a magistrate having jurisdiction for trial.

Record; Report: [Sec.] 174. Each game protector shall keep a daily record of his official acts, and at the close of each month report the same to the chief game protector. The salary and traveling expenses of a protector shall not be payable except upon the certificate of the chief game protector that such protector has made the required report and properly performed his duties.

Report: [Sec.] 175. The chief game protector shall make a monthly report to the commission of the operation of his department during the preceding month, and shall report any negligence or failure to perform duty on the part of any game protector, and shall make such further reports as shall be required by the commission.

Special game protectors: [Sec.] 176. The commission may in its discretion appoint a person recommended by a majority of the supervisors of any county or by any game club incorporated for the protection of fish or game, as special game protector. Such special game protectors shall hold office during the pleasure of the commission and shall have the same powers as game protectors except the right to search without warrant, but shall not receive pay from the state. They shall make reports in the same manner as game protectors.

Monroe county protectors: Secs. 176a–e. [Added by Laws of 1905, chap. 660.—Four special game protectors shall be appointed for Monroe County, on April first of each year, upon recommendation of the board of supervisors of the county. It shall be the duty of such special game protectors to arrest persons found setting, using, or in possession of unlicensed nets or other illegal fishing devices, and to report monthly to the forest fish and game commission and to the board of supervisors of Monroe County the number of nets captured, and arrests made, together with result of trials, and statement of expenses and disbursements.]

Peace officers: [Sec.] 177. Peace officers shall have the same powers as game protectors under this act, except the right of search without warrant.

Disposition of nets, etc.: [Sec.] 178. [As amended by Laws of 1905, chap. 657.] Nets, pounds or other devices unlawfully had, set or used in or upon any of the waters or islands of this State, for the purpose of taking fish or game in violation of this act, are hereby declared to be public nuisances and shall be summarily destroyed and abated by any game protector, or may be by a private person; provided, however, that the forest, fish and game commissioner may direct a game protector to retain certain nets or seines for the use of the State fish hatcheries. No action for damages shall be maintained for such seizure, retention or destruction.[a]

ARTICLE X.

Actions; Counsel; Attorney: [SEC.] 185. [As amended by Laws of 1906, chap. 199.] Actions for penalties for a violation of the forest, fish and game provisions of this act shall be in the name of the people of the State of New York; and must be brought on the order of the commissioner. The forest, fish and game commissioner may employ necessary counsel in the office of the forest, fish and game commission, and may likewise designate and appoint an attorney or attorneys to represent the department in the prosecution or defense of any action or proceeding brought under the provisions of the forest, fish and game law. They shall be paid by the state treasurer on the warrant of the comptroller such compensation as shall be agreed upon by the forest, fish and game commissioner. Such actions may be discontinued by order of the court on the application of the commissioner upon such terms as the court may direct. Such actions if in justice's courts, may be brought in any town of the county in which the penalty is incurred or of the county in which the defendant resides.

Recovery: [SEC.] 186. [As amended by Laws of 1905, chap. 285. Provides that in successful actions for recovery of penalties the State shall recover costs, witness fees and other disbursements].

Disposition of moneys; Fees: [SEC.] 187. Moneys recovered in an action for a penalty, or upon the settlement or compromise thereof, and fines for violations of this act shall be paid to the commission who shall apply so much thereof as may be necessary to the payment of the expenses of collection except attorney fees, and shall on the order of the commissioner pay one-half of the balance to the game protector or fire warden, upon whose information the action was brought.

Action by private person or society: [SEC.] 188. [As amended by Laws of 1907, chap. 96.] A private person, on giving security for costs to be approved by a judge of the court in which the action is brought and any society or corporation for the protection of fish or game, may recover in his or its name any penalty imposed by this act for a violation of the fish and game provisions thereof, and shall be entitled in case of collection, to one-half of the recovery; the balance shall be paid to the commission. Notice of the commencement of such an action shall be given to the commissioner or the chief game protector within fifteen days after the service of the summons therein, and failure to give such notice shall be a defense to the action. If after the commencement thereof an action be brought for the same penalty in the name of the people, an order shall be entered on the application of the chief game protector or of a commissioner for the discontinuance of such action without cost to either party. Motion papers in such an application shall be entitled in both actions.

Execution: [SEC.] 189. Judgments recovered under this act may be enforced by execution against the person. A person imprisoned upon such an execution shall be confined for not less than one day, and at the rate of one day for each dollar recovered. No person shall be imprisoned more than once or for more than six months on the same judgment. Imprisonment shall not operate to satisfy a judgment.

Jurisdiction: [SEC.] 190. Courts of special sessions and police courts in towns and villages, and the several courts in cities having jurisdiction to try misdemeanors as provided by section fifty-six of the code of criminal procedure, shall in the first instance have exclusive jurisdiction of offenses committed under this act, and the jurisdiction of said courts shall extend to all such offenses committed in the county where the court sits. A warrant shall be returnable before the magistrate issuing the same.

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[a] See Lawton *v.* Steele (N. Y.), 152 U. S., 133; 14 S. C., 499.

Search warrant: [Sec.] 191. Any justice of the peace, police justice, county judge, judge of a city court or magistrate having criminal jurisdiction, shall if it appear probable that fish or game taken or possessed contrary to the provisions of this act, is concealed, issue a search warrant for the discovery thereof, according to the practise provided in sections 794 to 797 inclusive of the code of criminal procedure.

Incriminating evidence: Sec. 193. [As amended by Laws of 1903, chap. 353.] No person shall be excused from testifying in any civil or criminal action or proceeding taken or had under this act upon the ground that his testimony might tend to convict him of a crime. But no evidence derived from the examination of such person shall be received against him upon a criminal prosecution. A person called for the people and so testifying shall not thereafter be liable to indictment or conviction for the violation or violations of this act respecting which he has so testified, and may plead or prove the giving of such testimony in bar of such an indictment or conviction.

Prima facie evidence: Sec. 4. [As amended by Laws of 1906, chap. 478.] Wild deer or venison shall not be possessed or sold from November 25 to September 30 both inclusive. Possession thereof from midnight of the fifteenth to the twenty-fourth of November shall be presumptive evidence that the same was unlawfully taken by the possessor.

Prima facie evidence; Killing dogs: Sec. 9. [As amended by Laws of 1901, chap. 545. Prohibits hounding deer.] If any such dog or bitch be found hunting, pursuing or killing deer or running at large in forests inhabited by deer, it shall be presumptive evidence of a violation of this section by the person owning, using, having or harboring such dog or bitch. Any person may, and it is the duty of every game protector to kill a dog or bitch found in the Adirondack park or in a deer forest, or pursuing deer and no action for damage shall be maintained against a person for such killing.

Destroying nets, etc.: [Sec.] 35. [Prohibits trapping, netting, or snaring birds.] Any such net, trap or snare is declared to be a public nuisance, and may be summarily abated and destroyed by any person and it is the duty of every protector to seize and destroy any such device.

NORTH CAROLINA.

Revisal of 1905, chap. 40, p. 564.

Incorporation of Audubon Society: [Sec.] 1862. J. Y. Joyner, T. Gilbert Pearson, R. H. Lewis, A. H. Boyden, H. H. Brimley, P. D. Gold, Jr., J. F. Jordan and R. N. Wilson are hereby created a body politic and corporate under the name and style of the Audubon Society of North Carolina, and by that name and style they and their associates and successors shall have perpetual succession, with power to take and hold, either by gift, grant, purchase, devise, bequest or otherwise, any real or personal estate, not exceeding fifty thousand dollars in value, for the general use and advancement of the purposes of the said corporation, or for any special purpose, consistent with the charter; and such property shall be exempt from taxation; to make rules and by-laws; to have and to use a common seal, and to change the same at pleasure; and to do and perform all such acts and things as are or may become necessary for the advancement and furtherance of the corporation.

Officers: [Sec.] 1863. The officers of said corporation shall be a president, vice-president, secretary and treasurer, and such other officers as may be fixed by the by-laws.

Objects: [Sec.] 1864. The objects for which the corporation is formed are to promote among the citizens of North Carolina a better appreciation of the value of song and insectivorous birds to man and the state; to encourage parents and teachers to give instruction to children on the subject; to stimulate public sentiment against the destruction of wild birds and their eggs; to secure the enactment and enforcement of proper and necessary laws for the protection and preservation of birds and game of the state; to provide for the naming of special officers and investing them with necessary power, who shall work under the direction and control of the Audubon Society of North Carolina, looking to the rigid enforcement of the game and bird protective laws of the state; to distribute literature bearing on these topics among the members of the society and other persons, and to raise and provide funds for defraying the necessary expenses of the society in the accomplishment of the purposes herein named.

Treasurer; Wardens: [Sec.] 1867. The Governor, upon the recommendation of the Audubon Society of North Carolina, shall, from time to time appoint bird and game wardens, and the treasurer of the society, whose terms of office, unless otherwise provided for, shall be during good behavior or until their successors are appointed. The governor shall issue to the treasurer of the Audubon Society, and to each person appointed as warden, a commission, and shall transmit such commission to the clerk's office of the superior court for the county from which the prospective treasurer or bird and game warden is appointed; and no tax or fee shall be charged or collected for said commission. Any of the said wardens may be removed by the governor upon proof satisfactory to him that they are not fit persons for said position. The compensation of said wardens shall be fixed and paid by the said society.

Oath; Bond; Badge: [Sec.] 1868. Every person appointed as warden shall, before entering upon the duties of his office, take and subscribe before the clerks of the superior courts of the county in which he resides an oath to perform the duties of said office, together with the other oaths prescribed for police officers, and execute a bond in the sum of one hundred dollars for the faithful discharge of his duties, and the said oath and bond shall be recorded by the clerk in his office, and the wardens so qualified shall possess and exercise all the powers and authority held and exercised by the constable at common law and under statutes of this state. The clerk shall not charge more than fifty cents for taking and recording said oath. The bird and game wardens, when acting in their official capacity, shall wear in plain view a metallic shield with the words "Bird and Game Warden" inscribed thereon.

Search; Prosecution; Enforcement: [Sec.] 1869. Duly appointed and qualified game and bird wardens shall, upon making an affidavit before a justice of the peace or any court of the state that there exists reasonable grounds to believe that any game or birds are in the possession of any common carrier in violation of the law, be entitled to a search warrant and to open, enter and examine all cars, warehouses and receptacles of common carriers in the state, where they have reason to believe any game or birds that have been taken or are held in violation of the law are to be found, and to seize such game or birds. It shall be the duty of said game and bird wardens to prosecute all persons or corporations having in their possession any bird or game contrary to the bird and game laws of this state. It shall be their duty to see that the bird and game laws are enforced and to obtain information as to all violation of said bird and game laws: Provided, that in Currituck county it shall be the duty of said wardens to also see to the enforcement of all laws relating to fishing in said county.

Contraband game; Disposition: [Sec.] 1870. Any bird or animal caught, taken, killed, shipped, or received for shipment, had in possession or under control by any person or corporation contrary to the provisions of law, which may come into the possession of the bird and game warden, shall be sold at auction, and the bird and game warden disposing of the same shall issue a certificate to the purchaser certifying that the said birds or animals were legally obtained and possessed, and any one so acquiring said birds or animals can have the right to use them as if the same had been sold, killed or possessed in accordance with the law. The money received from the sale of such confiscated birds or game shall be forwarded by the game warden to the treasurer of the state and be placed to the account of the Bird and Game Fund.

Bird and game fund: [Sec.] 1871. The funds received by the treasurer of the state from the license tax on nonresident hunters shall constitute a fund known as the Bird and Game Fund, which fund shall be paid out by the treasurer of the state on the order of the treasurer of the Audubon Society of North Carolina, who shall make an annual report to the governor of the receipts and expenditures of the society for the year.

Revisal of 1905, chap. 81, p. 1026.

Exemption of witnesses: [Sec.] 3462. * * * When more persons than one are engaged in committing the offense of fire-hunting, any one may be compelled to give evidence against all others concerned; and the witness, upon giving such information, shall be acquitted and held discharged from all penalties and pains to which he was subject by his participation in the offense. This section shall not apply to Currituck county.

Separate offense: [Sec.] 3469. * * * Each day's hunting without license shall be a separate offense.

Prima facie evidence: [Sec.] 3471. * * * The reception by any person or corporation within the state of any such birds or game [captured within the state] for shipment to a point beyond the limits of this state, shall be prima facie evidence that said birds or game were killed within the state for the purpose of conveying same beyond its limits; but the provisions of this section shall not apply to the common carriers into whose possession any of the birds mentioned in this section shall come in the regular course of their business for transportation while they are in transit through the state from any place without the state.

NORTH DAKOTA.

Revised Codes of 1899; Political Code, art. 11, p. 462.

Districts; Wardens; Bond; Deputies: Sec. 1642 [As amended by Laws of 1903, chap. 103.] This state shall be divided into two game districts. [District No. 1, comprises approximately that part of the state north of the 12th standard parallel. District No. 2, that part south of the parallel.] There shall be appointed by the governor in each of said game districts a game warden, who shall be known as the district game warden, and whose term of office shall be two years, commencing on the first Tuesday in April next succeeding his appointment and until his successor is appointed and qualified. He shall give a bond to be approved by the governor, in the sum of one thousand dollars, conditioned for the faithful performance of his duties. It is the duty of the district game wardens to superintend and aid in the enforcement of all laws of this state for the preservation of game therein. The district game wardens shall appoint deputy game wardens in the counties of their respective districts as follows: In each county having less than three thousand inhabitants, one deputy; in each county having more than three thousand inhabitants and not less than seven thousand inhabitants, two deputies; in every other county three deputies, and special deputies wherever and whenever they deem it advisable. Every deputy shall be an elector of the county for which he is appointed, and shall hold office at the pleasure of the district game warden, or until disqualified for any reason.

Production of license: Sec. 1643. [License to hunt subject to inspection of any person on demand.]

Disposition of license fees: Sec. 1646. [As amended by Laws of 1903, chap. 103.] Twenty per cent of all money received from the sale of permits [to hunt] shall be paid over to the state treasurer by the county auditor of each county on the first day of December of each year, and shall be placed in the state general fund. Thirty per cent shall at the same time be paid over to the district game warden by the county auditor of each county within his district, and shall be in full payment for his services. Forty per cent shall at the same time be paid over to the deputy game warden of the county, or when there is more than one, be divided equally between them, and shall be in full payment for their services, and the remaining ten per cent shall be retained by the county auditor for his personal services. And the county auditor of every county shall at the same time file with the state auditor a full report of all resident and non-resident permits issued by him during that year.

Powers; Duties; Arrest; Fees: Sec. 1647. [As amended by Laws of 1903, chap. 103.] For the purpose of enforcing the laws of this state for the protection of game, the district game wardens and their deputies shall have all the powers conferred by law upon constables. It shall be the duty of each deputy game warden diligently to inform himself of all violation of such laws and to prosecute the same, and to arrest the party so violating them with a warrant sworn out before any justice of the peace of the county in which the offense is committed, said warrant to be issued as provided in section 7891 of the revised codes. If caught in the violation thereof at the time of his arrest, a party may be arrested therefor without a warrant, when he shall be at once taken before a court having jurisdiction of the offense, and a warrant issued, when the same proceedings shall thereafter be had as if a warrant had been issued before his arrest, but no person shall be arrested without a warrant for any such violation when not engaged in such violation at the time of his arrest. Upon any conviction had for any violation of the provisions of this act, there shall be paid to the deputy making the arrest such fees as are allowed constables for services in like cases, to be taxed and collected as a part of the costs in the case.

Penal Code, chap. 72, p. 1533.

Seizure; Search: Sec. 7683a. [As amended by Laws of 1903, chap. 103.] It shall be the duty of district game wardens and their deputies, and all peace officers of this state, at any and all times to seize and take possession of any and all animals or birds which have been caught, taken, killed, shipped or received for shipment, had in possession or under control contrary to the provisions of the laws of this state. Such seizure may be made without a warrant. Any court having jurisdiction of the offense upon receiving by oath or affirmation [proof] of probable cause for belief in concealment of any birds or animals caught, taken, killed, shipped or received for shipment, had in possession or under control contrary to the provisions of the laws of the state, shall issue a search warrant and cause a search to be made therefor in any place particularly described in said warrant, and to that end may cause any building, inclosure or car to be entered and any apartment, chest, box, locker, crate, basket or package to be broken open and the contents thereof examined. Deputy game wardens and all peace officers taking or seizing any such animals or birds shall at once report the facts attending the same to the district game warden, and shall at his request turn the same over to him. After such taking such animals or birds shall be subject to the direction and control of the district game warden and shall be considered in his possession.

Contraband game; Disposition: Sec. 7683b. [As amended by Laws of 1903, chap. 103.] Any animals or birds caught, taken, killed, shipped or received for shipment, had in possession or under control contrary to the provisions of the laws of this state, which may come into the possession of the district game warden, either directly or through any deputy or peace officer, shall be sold or disposed of within this state, and the district game warden may issue a certificate to the person purchasing, certifying that the same were legally obtained and possessed, and anyone so acquiring same within this state shall have the right to deal therewith as if the same had been killed or possessed in accordance with the laws of this state. The deputy game warden or peace officer making such seizure shall be entitled to two-thirds of the proceeds of the sale of any of the animals or birds sold or disposed of as herein provided, and the district game warden shall be entitled to one-third of the proceeds of such sale.

Resistance to officers: Sec. 7683c. Whoever shall resist or obstruct any of said officers by threat or otherwise, in the discharge of their duties under this chapter, shall be guilty of a misdemeanor and upon conviction thereof, shall be punished by a fine of not less than twenty dollars nor more than fifty dollars and the costs of prosecution, or by imprisonment in the county jail not less than ten days nor more than thirty days, or by both such fine and imprisonment.

Propagation: Sec. 7683e. The commissioners of any county may expend not to exceed the sum of one hundred dollars per annum for the purpose of propagating game or fish, when it shall appear to them that such an expenditure would be beneficial to the county.

Indians: Sec. 7683f. [As amended by Laws of 1903, chap. 103.] It shall be unlawful for any Indian who is a ward of the United States government to hunt on any lands within this state at any time, except upon such lands as are known to be Indian reservation lands. It shall be the duty of the district game wardens, their deputies and all peace officers of this state, to arrest any Indian found hunting in violation of this act. It shall be the duty of the state's attorney in any county within this state to prosecute any Indian so arrested under the provisions of this act, and upon conviction such Indian shall be deemed guilty of a misdemeanor and be punishable by a fine of not less than twenty dollars nor more than fifty dollars, or may be imprisoned in the county jail not less than ten days nor more than thirty days, or may be subjected to both such fine and imprisonment; provided, that the provision of this section shall not apply to any Indian who takes out a permit to hunt, as provided for other persons.

OHIO.

Laws of 1904, p. 463.

Game commissioners: Sec. 1. That the governor, by and with the advice and consent of the senate, shall appoint five commissioners of fish and game, of whom not more than three shall belong to any one political party, one commissioner to serve for one year, one for two years, one for three years, one for four years, and one for five years, and at the expiration of the term of office of each member of the commission his successor shall be appointed for five years, who shall severally hold their office for five years, any one of whom may be removed by the governor at his pleasure; provided that the commissioners of fish and game serving as such at the date of the passage of this act shall serve out their respective terms unless sooner removed by the governor.

Bond: Sec. 2. [Each commissioner required to give a bond of $2,000 for faithful performance of duties.]

Expenses: Sec. 3. The commissioners shall serve without compensation, but they shall be entitled to be paid all their expenses while engaged in the discharge of their duties, which expenses shall be paid to them on their own certificates, severally.

Powers; Duties: Sec. 4. The commissioners of fish and game shall be, and are hereby vested with complete control and authority in all matters pertaining to the protection, preservation and propagation of song and insectivorous birds, game birds, game animals and fish within the State and in and upon the waters thereof. It shall be the duty of the commissioners to enforce, by proper legal action and proceeding, the laws of the State relating to the protection, preservation and propagation of song and insectivorous birds, game birds, game animals and fish, and to carry into effect all such measures in this behalf that they deem necessary so far as means åre placed at their disposal for these purposes.

Chief warden; Deputy and special wardens; Bond; Compensation: SEC. 5. The commissioners shall, at their annual meeting in January, or at such time as they deem proper, appoint a chief warden who shall hold his office for two years, unless sooner removed by the commissioners. They may also appoint such number of deputy state wardens as in their judgment are necessary. They may also appoint special wardens, when in their judgment they deem it necessary, who shall hold their office for such time as the commissioners may direct, and who shall possess the same powers and perform the same duties as deputy state wardens, and they may receive such compensation for their services as the commissioners deem proper. The deputy state wardens shall hold their offices for two years unless sooner removed by the commissioners. The chief warden, special wardens and deputy state wardens shall, before entering upon the discharge of their duties, each give a bond to the State of Ohio (the chief warden in the sum of two thousand dollars, the special wardens five hundred dollars, and the deputy state wardens in the sum of two hundred dollars), conditioned upon the faithful discharge of their respective duties, which bonds shall be approved by and be deposited with the commissioners. The commissioners may allow the chief warden a salary not to exceed fifteen hundred dollars per annum, and, in addition, his expenses (not exceeding one thousand dollars) incurred in the discharge of his duties. The salary and expenses of the chief warden, and the salaries and expenses of the special wardens, shall be paid out of the fund appropriated for the use of the commissioners. In addition to any other compensation, each warden shall be entitled to any fees which he may earn, which fees shall be the same as are paid sheriffs for similar services in criminal cases. The commissioners may also direct that any fines collected under prosecutions begun by any deputy state warden shall be paid to such warden by the officer before whom the prosecution is had, or by whom the fine is collected; and, in addition thereto, may pay them such further compensation, out of any moneys appropriated for such purposes, as they may deem proper.

Powers; Duties; Peace officers; Prosecuting attorney: SEC. 6. It shall be the duty of the chief warden, special wardens, and deputy state wardens to enforce the provisions of this act, and within this state, all laws relating to the protection, preservation and propagation of birds, fish and game. The chief warden shall, under the direction of the commissioners, visit all parts of the state and direct and assist the special wardens and deputy state wardens in the discharge of their duties. Each warden shall have full power to execute and serve all warrants and process of law issued for, in connection with, or growing out of the enforcement of any law relating to the protection, preservation or propagation of birds, fish and game, in the same manner and to a like extent, that any sheriff or constable may serve and execute such process; they may arrest on sight and without a warrant, any person detected by them in the act of violating any such laws; they shall have the same right as sheriffs to require aid in executing any process, or in arresting without process any person found by them in the act of violating any of said laws; and they shall have authority to seize without process, any birds, fish or game then found in the possession of any such person, which is so in possession contrary to law, together with the guns, nets, seins, boats, traps, or other devices with which the same were taken or killed, or used in taking or killing, and forthwith convey such offender before a court or magistrate having jurisdiction of the offense, who shall, upon the filing by the warden of a proper complaint, proceed speedily to try and determine the truth of the charge. Such arrest may be made on Sunday, in which case the offender shall be taken before such court or magistrate who may require bond for his appearance at the time fixed for the hearing of the complaint, which complaint shall be heard as soon as practicable on a week day following the arrest. In case the offender fails to give bond for his appearance (if any bond be required) the court may order him committed to the jail of the county, or to some other suitable place until the time set for the hearing of the complaint. Such prisoner or prisoners shall be received by the jailor or officer in charge of the place designated by the court or magistrate. It shall be the duty of all sheriffs, deputy sheriffs, constables and other police officers, to enforce all laws relating to the protection and propagation of birds, fish and game, and in their enforcement they shall have the same powers as are conferred upon the warden, and they shall be entitled to like fees for similar services. Prosecution by the wardens, or other police officers for offenses not committed in their presence, shall be executed [instituted] only upon the approval of the prosecuting attorney of the county in which the offense is committed, or under the direction of the attorney general; and for his services the prosecuting attorney shall receive twenty per cent. of all fines assessed and collected upon prosecutions conducted by him.

Seizure of guns, etc.; Lien; Replevin: Sec. 7. Any gun, net, seine, boat, trap or other device whatever used in the unlawful taking, catching, or killing of birds, fish or game, is hereby declared to be a public nuisance and shall, upon lawful seizure by any warden or police officer, be deemed forfeited to the state; and it shall be the duty of every warden or other police officer, to seize any such property and institute proceedings for its forfeiture, as provided in section eight of this act. When any such gun, net, seine, boat, trap or other device is seized and condemned, as provided in the next succeeding section hereof, the cost of such proceeding shall be adjudged against the owner or the user thereof at the time of the seizure, if known, which judgment shall be the first lien upon his property, and against which lien no exemption can be claimed. When a seizure of any such property has been made no writ of replevin shall lie to take it from the custody of the officer seizing it, or from the custody or jurisdiction of the court before whom such proceeding is pending, but such property shall be held by such officer or court to await the final determination of such proceeding; and such proceeding shall in no wise affect or bar a criminal prosecution of the person so using such property in violation of law.

Forfeiture proceedings; Sales: Sec. 8. When any gun, net, seine, boat, trap or other device is seized as provided in section seven of this act, it shall be the duty of the warden or other officer seizing it, to safely keep such property in his possession, or under his control, and to institute, within three days, in the proper court of the county wherein such property is seized, proceedings for its condemnation and forfeiture. Such proceedings shall be instituted by the filing of an affidavit, describing the property seized, setting out the unlawful use to which it was found put, giving the time and place of seizure, and setting out, if known, the name of the person owning, or using the same, at the time of seizure, and if such person be unknown, such fact shall be stated. The court before whom such affidavit is filed shall thereupon issue a summons setting out the facts alleged in the affidavit, and stating the time and place when the cause will be for hearing, a copy of which summons shall be served upon the owner, or person using the property at the time of [its] seizure (if he be known) personally, or by leaving a copy thereof at his usual place of residence, or business, if in the county, at least three days before the hearing of the complaint. If such owner or user be unknown, or if he be a non-resident of the county, or can not be found therein, a copy of the summons shall be posted up at a suitable place nearest the place of seizure, and copy mailed him (if his address be known) at least three days before the time set for the hearing of the complaint. The officer making such service shall make a return on the day set for the hearing, of the time and manner of making such service. The court may postpone the hearing upon a proper showing by either party, for such reasonable time as may be necessary. Upon the hearing, proceedings shall be had as provided in section nine of this act. If the court or jury shall find, by a preponderance of the evidence, that the property at the time of its seizure, was being used in violation of law, the court shall adjudge the property forfeited, and shall render judgment against the owner or user thereof, for the costs, and shall order the property turned over to the commissioners of fish and game, to be by them sold at such time and place as they shall deem best, and the proceeds thereof covered into the state treasury as provided by law. But if the court or jury shall find that the property, at the time of its seizure, was not being used in violation of law, the court shall order the property released. A writ of error may be prosecuted by the officer or person filing the complaint, or by the owner or user of the property seized, to review the judgment and order of the court in forfeiting the property, or in ordering its release, to the court of common pleas, circuit court, and supreme court, in the same manner as writs of error are prosecuted in other civil causes. But if the owner or person so unlawfully using the property at the time of seizure shall be arrested and shall plead guilty, and shall confess that the property seized was, at the time of its seizure, being used by him in violation of law, in such case it shall not be necessary to institute a proceeding to forfeit the same, but the court before whom the offender has pleaded guilty, shall, in imposing sentence, further order and adjudge that the property so seized be forfeited to the State.

Jurisdiction; Procedure; Costs: Sec. 9. Any justice of the peace, mayor, or police judge, within his county, shall have final jurisdiction in all prosecutions for the violation of any of the provisions of this act or of any law enacted for the protection, preservation, or the propagation of birds, fish, or game, and shall have like jurisdiction in all proceedings brought for the condemnation and forfeiture of any property used in the violation of any such law. If in any such prosecution, or condemnation proceeding, the defendant shall demand a trial by jury, the court before whom the prosecution or the proceeding is pending shall issue his venire to any warden or constable of the county, containing the names of sixteen electors of the township, city, or village, for which such court was chosen as such officer, to serve as jurors upon the hearing of such prosecution or proceeding, which officer shall promptly execute the same and make due return thereof to the court. If such venire be exhausted without obtaining the required number of jurors to fill the panel, the court may direct the warden, or the constable, to summon any of the bystanders, or to bring in other persons, to act as jurors. Provided, That if the defendant consent in writing (which shall be entered of record), he may be tried by a jury composed of six persons, in which case the venire need not contain the names of more than ten electors. Each party shall be entitled to two peremptory challenges, and to such other challenges of jurors for cause as are permitted in criminal cases in the court of common pleas. In criminal prosecutions like proceedings shall be had as in criminal cases in the court of common pleas; and in condemnation proceedings, like proceedings shall be had as in civil cases in the court of common pleas. In all prosecutions and condemnation proceedings for the violation of any law enacted for the protection, preservation or the propagation of birds, fish, or game, no cost shall be required to be advanced, secured, or paid by, or bond or undertaking required of, any person whose duty it is under the law, to prosecute such cases or proceedings. And if the defendant be acquitted, or if convicted and committed in default of payment of fine or costs, or if the property seized be released, the costs in such cases shall be certified under oath to the county auditor who, after correcting the same, if found incorrect, shall issue his warrant on the county treasurer in favor of the person or persons to whom such costs and fees are due, and for the amount due each person respectively.

Prima facie evidence; Corporations; Conviction; Fines, etc.: Sec. 10. The finding of any gun, net, seine, boat, trap or other device set, maintained, or in use, in violation of any law relating to the protection, preservation or propagation of birds, fish or game, shall be prima facie evidence of the guilt of the person owning, using or making claim to the same; and the finding of any birds, fish, or game, unlawfully in the possession of any person, shall be prima facie evidence of the guilt of such person. * * * Whenever any affidavit shall be filed and warrant issued against any corporation for the violation of any of the provisions of this act or any law for the protection, preservation or propagation of birds, fish or game, a summons shall be issued, directed to the sheriff, constable or warden, commanding said officer to notify the accused thereof, and returnable on or before the tenth day after its date; such summons, together with a copy of the warrant, shall be served and returned in the manner provided for the service of summons upon such corporations in civil actions; the corporation on or before the return day of the summons, may appear by any one of its officers or by council and answer the warrant by motion, demurrer or plea, and upon its failure to make such appearance and answer, a plea of "not guilty" shall be entered, and upon such appearance being made or plea entered, the corporation shall be deemed thenceforth continuously present in court until the case is finally disposed of. In every case of conviction, the cost of prosecution, and of condemnation shall, in addition to the fine imposed, or forfeiture declared, be adjudged against the person convicted, or the owner or user of the property condemned. Whenever, upon conviction, the person convicted fails to pay the fine and costs imposed upon him, or execution issued is returned unsatisfied, he shall be committed to the jail of the county or to some workhouse and shall there be kept confined one day for each one dollar fine and costs adjudged against him, and he shall not be discharged or released therefrom by any board or officer, except upon payment of the portion of the fines and costs remaining unserved, or upon the order of the commissioners of fish and game. All fines, penalties, and forfeitures arising from prosecutions, convictions, confiscations, or otherwise (unless otherwise directed by the commissioners of fish and game) shall be paid by the officer before whom the prosecution is had or by whom the fine is collected, to the president of the commissioners of fish and game, and by him paid into the state treasury to the credit of the fund which is hereby appropriated for the use of the commissioners.

Search; Seizure: Sec. 11. Every warden, sheriff, deputy sheriff, constable, or other police officer, may inspect any package, parcel, box, coat or clothing, or other receptacle, in the possession of any person, which the said warden shall have good reason to believe contains birds, fish, or game killed, taken, or had in possession in violation of law; and to inspect any room, building, car, boat, or other place wherein birds, fish, or game are kept for sale, or which he has good reason to believe contains birds, fish or game, killed, taken, or had in possession in violation of law. If the person in whose custody or possession such package, parcel, box, coat or clothing, or other receptacle may be, or the owner or person in charge of any such room, building, car, boat, or other place refuse to permit such inspection, upon demand made by the warden, the warden shall have the power after having made, or without making such demand, upon filing an affidavit in accordance with the provisions of section 7121 Revised Statutes before an officer having jurisdiction of the offense, and receiving a search warrant issued thereon, to forcibly open and inspect any such package, parcel, box, coat or clothing, or other receptacle, or room, building, car, boat or other place, and if he shall find therein any birds, fish, or game, unlawfully in the possession of any person, he shall forthwith seize the same, and the same shall escheat to the state, and arrest the person in whose custody or possession the same is found.

Separate offense; Prima facie evidence: Sec. 16. [Fixes seasons for rabbits, squirrels, and raccoons, and prohibits sale or transportation of squirrels.] And each squirrel so killed, taken, had in possession, received for transportation, or transported, contrary to the provisions of this section, shall constitute a separate offense. The reception by any person within this state of any squirrel for shipment to a point without the state, shall be prima facie evidence that they were killed within this state for the purpose of conveying the same beyond its limits. * * *

Separate offense; Prima facie evidence: Sec. 18. [Prohibits purchase, sale or possession of game birds in close season, transportation beyond the state, or killing for such purpose.] And each bird or fowl, so killed, taken, had in possession, received for transportation, or transported, contrary to the provisions of this section, shall constitute a separate offense. The reception by any person within this state of any such birds, game, or animals, for shipment to a point without the state, shall be prima facie evidence that they were killed within this state for the purpose of conveying the same beyond its limits. * * *

Licenses; Production of license; Separate offense: Sec. 22. [Provides for nonresident license of $15.] The commissioners of fish and game may revoke license of a nonresident upon satisfactory proof that such person has hunted in violation of law; and no license shall be granted to a person whose license has been revoked for a period of one year thereafter. The clerk of courts shall keep a record of each license issued, and shall make a report to the commissioners of fish and game, during the month of December, in such form as they shall require of the number of licenses issued, and shall transmit, with such report, to the president of the commissioners of fish and game, the moneys received during the hunting season, which moneys shall be paid into the state treasury to the credit of a fund, which is hereby appropriated for the use of the commissioners of fish and game. Every such nonresident person shall, when hunting, carry with him his license, and shall, upon demand, exhibit it to any warden or police officer, and a refusal to so exhibit his license shall constitute an offense under this section. The record of licenses kept by the clerk of courts shall be open at all reasonable hours to the inspection of any person. Each day that any nonresident person shall hunt, within this state, without first having procured the license herein required, shall constitute a separate offense. * * *

Approved April 26, 1904.

OKLAHOMA.

Wilson's Revised and Annotated Statutes, 1903, Chap. XXXVIII, p. 755.

Game and fish warden: (3084) [Sec.] 16. It shall be the duty of the Governor to appoint some person, a resident of this Territory, Game and Fish Warden. Said Warden shall hold his office for four years, or until his successor is appointed and qualified, unless removed for cause or at the will of the Governor; and that said Game Warden shall serve in such capacity without compensation, except as provided in this Act.

Duties; Proceedings: (3085) [Sec.] 17. It shall be the duty of said Game and Fish Warden * * * to enforce the laws applicable to game and fish, and for the preservation of all game and fish as provided by this Act and which may hereafter become the law of this Territory, or be enacted, and to bring or cause to be brought, and to prosecute or cause to be prosecuted, actions and proceedings in the name of this Territory to punish any person for the violation of said statute laws of this Territory: Provided, That such actions and proceeding may be brought in the name of the Territory in like cases, in the same courts and under the same circumstances by any individual or by the county attorney of the several counties: And, provided further, That no bond shall be required for costs from any person making such complaint.

Action; Search; Prima facie evidence; Seizure; Nonliability: (3086) [Sec.] 18. That the Game and Fish Warden may make complaint and cause proceedings to be commenced against any person for the violation of any of the laws for the protection or propagation of game or fish without the sanction of the county attorney of the county in which such proceedings are commenced, and in such case he shall not be obliged to furnish security for cost. Said Warden may also appear for the Territory in any court of competent jurisdiction in any case for violation of any of the laws for the protection or propagation of fish and game, and prosecute the same in the same manner and with the same authority as the county attorney of the county in which the proceedings are commenced. Said Warden shall have power to search any person and examine any boat, conveyance, vehicle, fish box, fish basket, game bag or game coat or any other receptacle for game or fish when he has good reason to believe that he will thereby secure evidence of the violation of the law: and any resistance, hindrance or interference or attempt at resistance, hindrance or interference with such search and examination shall be prima facie evidence of a violation of the law by the party or parties who resist, hinder or interfere with or attempt to resist, hinder or interfere with such search or examination. That said Game Warden shall at any and all times seize and take possession of any and all birds, animals or fish, which have been caught, taken or killed at a time, in a manner or for a purpose, or had in possession or under control, or have been shipped contrary to any of the laws of this Territory, and such seizure may be made without a warrant. Any court having jurisdiction of the offense, upon receiving proof or probable cause for believing in the concealment of any bird, animal or fish, caught, taken, killed, had in possession, under control, or shipped contrary to any of the laws of this Territory, shall issue a search warrant and cause a search to be made in any place, and to that end may cause any building, enclosure or car to be entered, and any apartment, chest, box, locker, crate, basket or package, to be broken open and the contents thereof examined by said Game and Fish Warden. All birds, animals or fish, or nets or fishing appliances or apparatus seized by the same Game and Fish Warden shall be disposed of in such manner as may be directed by the court before whom the offense is tried or by any court of competent jurisdiction. Said Game and Fish Warden shall not be liable for damages on account of any search, examination or seizure, or the destruction of any nets or fishing apparatus of any kind, in accordance with the provisions of this Act.

Criminal process; Arrest; Sunday; Compensation: (3087) [Sec.] 19. Said Game and Fish Warden shall have the same power to serve criminal process as sheriffs, and shall have the same right as sheriffs to require aid in executing such process. Said Warden may arrest without warrant any person caught by him in the act of violating any of the aforesaid laws for the protection or propagation of birds, game or fish, and take such person forthwith before a justice of the peace, or other magistrate having jurisdiction, who shall proceed without delay to hear, try and determine the matter, and the same proceedings shall be had as near as may be, as in other criminal matters triable before a justice of the peace, or other magistrate having jurisdiction. Such arrest may be made on Sunday, in which case the person arrested shall be taken before a justice of the peace or other magistrate having jurisdiction and proceeded against as soon as may be, on a week day following the arrest. And that said Game Warden shall receive the same compensation for making arrests and serving of processes when acting under the game and fish laws of this Territory as are allowed the sheriffs for performing a like service.

County game wardens; Deputies; Compensation: (3088) [Sec.] 20. That the said Game and Fish Warden shall have power to appoint a Deputy Game and Fish Warden in each county in the Territory, to be known as the county game warden, who shall have the same power and authority herein provided for the Game and Fish Warden himself, subject to the supervision and control of and the removal by the Game Warden. That the said county game warden shall also have power to appoint in each county, not to exceed five deputies, residents thereof, as deputy game and fish wardens, who shall have the same power in their respective counties as is herein provided for the Game and Fish Warden himself, subject to the supervision and control of, and to be removed by the Territorial Game and Fish Warden, and shall receive such compensation as provided in this Act for the serving of processes and making arrests and such other compensation as may be provided for by the Game and Fish Warden of the Territory, but in no case shall the county or Territory be liable for any fees or compensation other than for the serving of process as herein provided. Any person who hinders or obstructs or interferes with or attempts to hinder, obstruct or interfere with the said Game and Fish Warden, or any deputy or county warden in the discharge of his duties, shall be deemed guilty of a misdemeanor, * * *

Costs; Warden's fees: (3089) [Sec.] 21. In each prosecution before a justice of the peace for the violation of any of the provisions of this Act there shall be a fee of ten dollars taxed and collected as costs, and one-half of which shall be paid by the justice of the peace to the Game Warden of the Territory, and one-half to the county game warden of the county in which such prosecution is had, and for each prosecution in the district court, there shall be a fee of twenty-five dollars taxed and collected as costs, one-half of which shall be paid by the district clerk to the Game Warden of the Territory and one-half to the county game warden of the county in which such prosecution is had.

Prima facie evidence: (3073) [Sec.] 5. The possession or having under control of any kind of bird, game or fish, the killing of which is at any time or at a time prohibited by the laws of this Territory, shall be prima facie evidence that it was killed in this Territory, to disprove which it shall be necessary to show by the testimony of the party who actually caught, took or killed the same, that it was killed outside of this Territory. Whenever it shall appear that any bird, game or fish of a kind, the killing of which is at any time or at all times prohibited by the laws of this Territory, was caught, taken or killed outside of this Territory, it shall be prima facie evidence that such bird, game or fish was caught, taken or killed at a time, in a manner and for a purpose prohibited by the laws of the Territory, State or country where it was caught, taken or killed, and was shipped out of said Territory, State or country in violation of the laws thereof, to disprove which it shall be necessary to show by direct and positive evidence that it was killed at a time, in a manner and for a purpose permitted by the laws of the Territory, State or country where the same was killed, and that its shipment out of said Territory, State or country was not forbidden by the laws thereof.

County and township officers; Costs: (3082) [Sec.] 14. For the more certain detection and punishment of the violators of this Act, it is hereby made the duty of all county and township officers, when any violation of the provisions of this Act is brought to their knowledge, to file an affidavit before some court or magistrate having jurisdiction of such cases information and belief charging the person or persons with the offense committed, and upon the filing of such affidavit, a warrant shall issue for the arrest of said person or persons to be tried for misdemeanor as provided by the criminal laws of the Territory of Oklahoma, except that it shall not be necessary for the county attorney to recommend that a warrant issue and any person making complaint shall not be liable for costs: Provided, That no bond shall be required for costs from any persons making such complaint. And any person violating the provisions of, or the duties imposed by this section, shall be deemed guilty of a misdemeanor, * * *

Common carriers: (3083) [Sec.] 15. * * * And it is hereby made the duty of each and every county attorney in the Territory, upon information that any railroad company, express company, or other common carrier has violated any of the provisions of this Act within their respective counties, to immediately institute suit therefor as in this Act provided.

Laws of 1903, Chap. XV, p. 167.

Informers; Attorney's fee: SEC. 1. [Prohibits under penalty of $50–$200 sale of deer, antelope, prairie chicken, grouse, quail, wild turkey, dove, or insectivorous birds;] one-half of such fine shall go to the informer of said violation of said law, and there shall be taxed as costs in said case a fee of ten dollars, to go to the county attorney prosecuting the same.

Informers; Attorney's fee: SEC. 3. [Prohibits under penalty of $100–$500 transportation of game and birds mentioned in sec. 1] and one-half of said fine shall go to the informer of said violation of said law, and there shall be taxed as costs in said cause a fee of fifty dollars to go to the county attorney prosecuting the same.[a]

Common carriers; Disposition of fine; Attorney's fee: SEC. 4. [Prohibits common carriers from receiving or carrying the game and birds mentioned in sec. 1.] Any railroad company, express company, or other common carrier, or private individual, who shall, through itself, himself, or its agent, servant or employe violate any of the provisions of this section, shall forfeit and pay to the Territory of Oklahoma, for each violation thereof, the sum of five hundred dollars, to go to the common school fund of said county, together with all costs of suit, including a fee of one hundred dollars to go to the county attorney bringing said suit, to be recovered in a civil action to be instituted by the county attorney of the county wherein said suit is brought, which sum of five hundred dollars, and costs of said suit shall be collected upon execution as in civil costs.

Search; Arrest: SEC. 5. It shall be the duty of the game warden, the deputy game wardens, and all sheriffs, marshals, and constables of this Territory, whenever they are informed or believe that section three of this act is being violated, to enter upon any premises, and to search any such premises or any box, or package of any kind, without warrant or process, and if any game is found in any person's possession, it shall be their duty to seize said game and to arrest, without warrant, the person in whose possession it is found, and to take said person immediately before the probate court of the county wherein said person is arrested.

Approved March 18, 1903.

OREGON.

Bellinger and Cotton's Annotated Codes and Statutes, 1902, p. 717.

Game warden; Bond; Compensation: [SEC.] 2051. The governor shall appoint a state game and forestry warden, who shall be a resident of this state, and who shall hold his office for the term of four years from the date of his appointment, and until his successor is appointed and qualified; and any vacancy occurring during said term shall be filled by the governor for the residue of the term: Provided, that the person now holding the office of game and forestry warden of this state shall continue to hold said office for a period of four years from the date of his appointment, and until his successor is appointed and qualified. Before entering upon the duties of his office, said state game and forestry warden shall file with the secretary of state a bond, to be approved by the governor, in the sum of five thousand dollars, conditioned for the faithful performance of his duties as prescribed in this act. His compensation shall be one thousand two hundred dollars per year, to be paid in monthly payments, and he shall be allowed for his actual traveling, office, and other expenses in the performance of his duties a sum not exceeding five hundred dollars per year.

Special deputies; Compensation: [SEC.] 2052. [As amended by Laws of 1905, chap. 192.] Said State Game and Forestry Warden shall have power to appoint such a number of special deputy game and forestry wardens as he may deem necessary, who shall hold office for such time as the State Game and Forestry Warden may designate, and who may be removed from office by said State Game and Forestry Warden at any time, and their places filled in like manner as at the original appointment. Said special deputy game and forestry wardens shall perform their duties at the direction of and subject to the supervision and control of said State Game and Forestry Warden. Said special deputy game and forestry wardens shall each receive a per diem compensation, to be fixed by the State Game and Forestry Warden, of not to exceed $2.00 per day for each day actually spent in the discharge of their duties, and their actual expenses necessarily incurred when so employed; said compensation and expenses to be paid in like manner as that of the State Game and Forestry Warden, on the approval of itemized vouchers therefor, verified under oath and certified to by the State Game and Forestry Warden; *provided however*, that the total amount certified to by the State Game and Forestry Warden for the compensation and expenses of all deputies whom he may appoint shall not exceed, in any one year, the total amount appropriated for the use of the State Game and Forestry Warden for such purposes for such year added to the amount of money derived from hunting licenses.

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[a] See Cameron *v.* Territory, 86 Pac., 68.

Search; Prima facie evidence; Disposition of game; Jurisdiction: [Sec.] 2053. It shall be the duty of the state game and forestry warden, under the direction of the governor, to enforce the laws of the State of Oregon for the protection of trout, game fish, game birds, game, wild fowl, song birds, and forests, and to bring or cause to be brought actions or proceedings in the name of the state to recover any and all fines and penalties, and to inflict punishments for violation of such laws. He shall have power to search any person, and examine any boat, conveyance, vehicle, game bag, game basket, game coat, or other receptacle for game or game fish, all cold storage rooms, packages or boxes held either for storage or shipment, which he has reason to believe contain evidence of the infraction of the laws of this state for the protection of wild fowl, trout, other game fish, game, game birds, song birds, and forests; and if upon diligent inquiry he can discover evidence sufficient in his judgment to secure the conviction of the alleged offenders, or shall have cause to believe that sufficient evidence exists to justify the same, he shall at once institute proceedings to punish the alleged offenders; and hindrance or interference with such search and examination shall be *prima facie* evidence of a violation of the law by the party or parties who hinder or interfere, or attempt to hinder or interfere, with such search and examination. Said game and forestry warden shall at any and all times seize and take possession of any and all game, wild fowl, game fish, game birds, song birds, or trout which have been caught, taken, or killed at any time, in any manner or for any purpose, or had in possession or under control, which have been shipped contrary to any of the laws of this state. Such seizure may be made without warrants. Any court having jurisdiction of the offense, upon receiving proof or probable cause for believing in the concealment of any game, wild fowl, game fish, game bird, song bird, or trout caught, taken, killed, had in possession, under control or shipped contrary to any of the laws of this state, shall issue a search warrant and cause a search to be made in any place, and to that end may cause any building, inclosure, car, boat, apartment, chest, box, crate, basket, or package, to be broken open and the contents thereof examined by said state game and forestry warden, or any deputy warden, sheriff, or constable. All trout, game fish, game, game birds, wild fowl, or song birds seized by said state game and forestry warden, or any of his deputies, shall be disposed of in such manner as may be directed by the court before whom the offense is tried, or by any court of competent jurisdiction. Justice's courts shall have concurrent jurisdiction of the offense defined in this act. Such actions or proceedings shall be commenced on the order of the state game and forestry warden in the name of the State of Oregon, by any district attorney in the district in which the offense shall be alleged to have been committed, and such action shall be prosecuted to determination in the county where commenced, unless, for some good cause appearing, a discontinuance shall be directed by the state game and forestry warden; but in no case where such discontinuance shall be directed shall any costs be charged or chargeable to the prosecution.

Auditing accounts; Report: [SEC.] 2055. All salaries and expenses incurred under the provisions of this act shall be audited by the secretary of state, upon presentation of bills or accounts properly certified, and the said secretary of state shall draw warrants in payment thereof upon the state treasurer for the amounts specified in such accounts. The state game and forestry warden shall annually, on the first day of December, make a report to the governor of the operations of his department during the preceding year.

Arrest; Trial: [SEC.] 2056. The said state game and forestry warden, or any of his deputies, or any sheriff, deputy sheriff, or constable may, without warrant, arrest any person violating any of the laws of this state for the protection of trout, game fish, game, game birds, wild fowl, song birds, or forests, and take such persons before any court having jurisdiction of the offense, who shall proceed without delay to hear, try, and determine the matter, and enter judgment according to the allegations and proofs.

Disposition of market hunting license fees; Record; Report: [SEC.] 2044. [Requires nonresident market hunters to procure a license from state game and forestry warden; fee $10.] All licenses issued hereunder shall be nontransferable and shall expire December 31 of the year of issue, and all license fees collected by the state game and forestry warden hereunder shall be by him paid into the general fund of the state treasury; and said warden shall keep a full record of all licenses so issued, and shall report the same to the governor annually.

Prima facie evidence: [SEC.] 2045. * * * and proof of the possession of any of the aforesaid wild animals, wild fowl, or game birds at any time when it is unlawful to take or kill the same, unless they be kept as in this section provided [in parks, museums, as household pets or for scientific or breeding purposes], shall be *prima facie* evidence in any prosecution for a violation of the provisions of this act that the person or persons, firm, company, or corporation in whose possession the same is found took, killed, destroyed, or had in possession the same in the county wherein the same is found during a period when it was unlawful to take, kill, destroy, or have the same in possession: * * *

Disposition of fines: [SEC.] 2050. All fines imposed and collected in money, as provided in this act, shall be paid into the treasury of the county in which such suits, actions, or proceedings shall have been commenced, and the district attorney or treasurer of said county, upon the payment of any judgment, may satisfy the same of record as the attorney for the state. One half of all such money, exclusive of costs, shall be paid to and belong to the informer, whether such informer be the sheriff, constable, city marshal, police officer, or other person (other than the state game and forestry warden, or any of the special deputy game and forestry wardens provided for in this act,) who causes to be brought the action or proceeding in which such fine or penalty shall be recovered, and shall be paid to such person by the county treasurer within thirty days after the same shall be received by such treasurer, upon the certificate of the prosecuting attorney, justice of the peace, or judge who prosecuted or heard such action, that such action or proceeding was brought or caused to be brought by such person, and that he is entitled to one half of said fine; and the other one half of said fine shall be retained by the county treasurer, to be applied to the payment of the expenses of such suit, action, or proceeding. All money thus paid into the treasury of any county over and above the amount necessary to reimburse the county for any expense incurred by the county in such suit, action, or proceeding brought under the provisions of this act, shall be paid on or before the thirtieth day of December in each year into the state treasury, and become and be a part of the general fund.

Laws of 1903, p. 140.

Peace officers: SEC. 1. That from and after the passage of this act the sheriffs and deputy sheriffs of the counties and constables of the various precincts and districts of the State of Oregon shall be and hereby are created *ex officio* fire, game, and fish wardens.

Duties; Arrest; Trial; Sunday: SEC. 2. It shall be the duty of said fire, game, and fish wardens to enforce all statutes of the state now in force, or that may hereafter be enacted, for the protection of forests and timber lands from fire, and for the protection of game, game birds, game mammals, song and insectivorous birds, and fish, * * * and said sheriffs, deputy sheriffs, constables, or wardens shall have authority to arrest, without warrant, any person or persons caught by them in the act of violating any of the aforesaid laws for the protection of forests and timber lands, game and food and game fish, and take such person or persons forthwith before a justice of the peace, or other magistrate having jurisdiction, who shall proceed without delay to hear, try, and determine the matter. Such arrests may also be made on Sunday, in which case the person or persons arrested shall be taken before the proper officer, and proceeded against as soon as may be on a week day following the arrest.

Search; Seizure; Nonliability: SEC. 3. Said sheriffs, deputy sheriffs, constables, or wardens shall have power, without warrant, to search and examine any boat, conveyance, vehicle, fish box, fish basket, game bag, or game coat, or other receptacle for game or fish, when they have good reason to believe that any of the laws for the protection of forests and timber lands, game and food fish, have been violated; and the said sheriffs, deputy sheriffs, constables, or wardens shall at any time seize and take possession of any and all birds, animals, or fish which have been caught, taken, or killed at any time in a manner or for a purpose, or had in possession or under control, have been shipped or about to be shipped, contrary to any of the laws of this state; * * * Any court having jurisdiction of the offense, upon receiving proof of probable cause for believing in the concealment of any bird, animal, or fish, caught, taken, killed, had in possession, under control or shipped, or about to be shipped, contrary to the law, shall issue a search warrant, and cause a search to be made in any place, and to that end may, after demand and refusal, cause any building, inclosure, or car to be entered, and any apartment, chest, box, locker, crate, basket, or package to be broken open and the contents thereof examined by any said sheriff, deputy sheriff, constable, or warden. All birds, animals, or fish, or nets, or fishing appliance or apparatus, seized by any sheriff, deputy sheriff, constable, or warden shall be disposed of in such manner as may be directed by the court before whom the offense is tried, and such sheriff, deputy sheriff, constable or warden shall not be liable for damages on accouut of any search, examination, or seizure, or the confiscation of any nets or fishing appliance or apparatus of any kind in accordance with the provisions of this act.

Moiety of fines: SEC. 4. Any sheriff, deputy sheriff, constable, or warden, as informer or prosecutor, upon the arrest and prosecution of any offender to conviction under the provisions of this act, shall, in addition to the fees to which he may be entitled under existing laws, be entitled to receive one third of the money collected as fines in such action.

Jurisdiction; Returns of violations: SEC. 5. Each of the said sheriffs, deputy sheriffs, constables, or wardens shall, for the purpose of this act, have concurrent jurisdiction throughout his own proper county; and they shall in the first week in each term of the circuit court of their respective counties, make special returns to said court, under oath, of all violations occurring in their respective counties or districts, or which may come or be brought to their notice, of any of the provisions of any law now in force, or that may hereafter be enacted for the protection of the forests and timber lands, game, and fish; and it shall be the duty of the judge of said court to see that such returns are faithfully made, and any sheriff, deputy sheriff, constable, or warden wilfully neglecting or refusing to make such returns or to prosecute any offense under said laws of which he shall have personal knowledge, or of which he shall have notice in writing by any citizen, giving the name of the offender, together with the names of the witnesses, shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be sentenced to pay a fine of $50, or to undergo an imprisonment in the county jail of two months, both or either, at the discretion of the court.

Approved February 19, 1903.

Laws of 1905, chap. 204, p. 336.

Disposition of hunting license fees; Fines: Sec. 2. * * * All moneys so collected [for resident and nonresident hunting licenses] by the county clerk shall, at least once in every three months, be forwarded to and deposited with the State Treasurer, and be placed to the credit of the fund for the protection of game and game fish, and shall be used as authorized by law by the State Game and Forestry Warden, or such other officer or officers as may be vested with authority to enforce the laws of this State for the protection of game or game fish within the State. All fines collected under the provisions of this act [establishing resident and nonresident licenses] shall be paid to the State Treasurer, and shall be placed by him in said game protection fund and be used for the protection of game and game fish.

Approved February 21, 1905.

PENNSYLVANIA.

Laws of 1895, No. 187, p. 273.

Game commissioners; Compensation: Sec. 1. Be it enacted, &c. That the Governor of the Commonwealth is hereby authorized and required to appoint, subject to the approval of the Senate, six competent citizens of this State to be and act as a Board of Game Commissioners, no two of whom shall be from the same Senatorial district, [term 3 years, no compensation] * * *

Office; Meetings; Statistics; Reports: Sec. 2. The Board of Game Commissioners shall have an office in the Capitol, at Harrisburg, Pennsylvania, and shall hold meetings at such office on the first Thursday of January and July, and at such other times and places within the State as the commissioners shall appoint for the transaction of business. It shall be the duty of said board to protect and preserve the game, song and insectiverous birds and mammals of the State, and to enforce, by proper actions and proceedings, the laws of this Commonwealth relating to the same. It shall be the duty of said board to collect, classify and preserve all such statistics, data and information as, in their judgment, will tend to promote the objects of this act, to take charge of and keep all reports, books, papers and documents which shall, in the discharge of their duties hereunder, come into their possession or under their control. It shall be the duty of said board, on or before the first Monday in December of each year, to prepare and present to the Governor of this State an annual report showing what has been done by them during the current year, the amount received by them and from what sources, and the amount expended by them and for what purposes, with such recommendations for legislative action, if any, as the said board may deem wise for the better accomplishment of this act. The Governor shall lay said reports before the legislatures convening next after their receipt.

Game protectors; Chief protector; Bond: Sec. 3. The Board of Game Commissioners shall have the power and authority to appoint ten (10) competent men whose powers and duties are hereinafter defined and who shall be known as game protectors. The said board shall, from time to time, designate one of such protectors as chief protector who shall remain such during the pleasure of the board and who shall have the direction, supervision and control of the other protectors. The chief game protector shall be secretary to the Board of Game Commissioners and shall occupy as his permanent headquarters the room assigned the Game Commissioners at the Capitol in Harrisburg.

The Chief Protector shall give a bond to the Board of Game Commissioners with securities in the sum of one thousand dollars and each of the other protectors a bond with securities in the sum of five hundred dollars, conditioned for the faithful discharge of his duties, such bond to be approved by the commissioners. * * *

Powers; Record; Report; Compensation: Sec. 4. Game protectors so appointed shall hold office during the pleasure of the Board of Game Commissioners, which may summarily remove any of their number and appoint another in his place. The game protectors shall enforce all the game laws of the State and the provisions supplementary thereto, and shall have full power to execute all warrants and search warrants issued for the violation of the game laws, and to serve subpoenas issued for the examination, investigation or trial of all offenses against said laws; each protector shall keep a record of his official acts, receipts and expenditures and at the close of each month make a summary of such record, with such statements in detail as shall be necessary for the information of his chief, and report the same to the chief protector under oath. The chief protector shall report to the Board of Commissioners any negligence or dereliction of duty or incompetency on the part of any of the protectors, with the facts relating thereto, and he shall report monthly to said commissioners the operations of his department during the preceding month, and shall make such further reports as may be required by the Board of Commissioners: Provided, That no commissioner, protector or other officer authorized by this act shall claim or receive any compensation for his services or for expenses incurred in the discharge of his duties.

Approved June 25, 1895.

Laws of 1878, No. 160, p. 160.

Prime facie evidence: Sec. 33. In all cases of arrest made for the violation of each or any of the foregoing sections of this act [prohibiting use of big or swivel guns, hunting pheasants or grouse at night, and Sunday hunting[a]], the possession of the game, fishes, birds, animals, fowls, nets or other devices provided for, or so mentioned, shall be prime facie evidence of the violation of said act.

Arrest; Disposition of fines; Limitation; Imprisonment: Sec. 34. Any justice of the peace or alderman, upon information or complaint made before him, by the affidavit of one or more persons, of the violation of the provisions of this act by any person or persons, is hereby authorized and required to issue his warrant, under his hand and seal, directed to any constable, police officer or warden, to cause such person or persons to be arrested and brought before said justice or alderman, who shall hear and determine the guilt or innocence of the person or persons so charged, and if convicted of said offense or offenses, shall be sentenced to pay the fine or fines, penalty or penalties, attached to such violation, together with costs, one-half of which penalties shall go to the informer, and the remaining one-half shall be forthwith paid to the treasurer of the county in which the offense was committed; and it shall be the duty of said treasurer to distribute said fund so arising at the close of each year to the various school districts in said county, in proportion to the number of taxables in said districts: Provided, That said conviction shall be had within one year from the time of committing the offense: And provided further, That the defendant on refusing to pay said penalty shall be committed to the common jail of the county for a period of not less than one day for each dollar of penalty imposed, unless the defendant enters into recognizance with one or more sufficient securities to answer said complaint on a charge of a misdemeanor, before the quarter sessions of the peace of the county in which the offense is committed, which court, on conviction of the defendant of the offense charged, and failure to pay the penalty or penalties imposed by this act, together with costs, shall commit said defendant to the common jail of the county for a period of not less than one day for each dollar of penalty imposed.

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[a] Other sections of this act seem to be superseded by subsequent legislation.

Arrest; Search; Jurisdiction: Sec. 35. Any judge of the court of quarter sessions of the peace, or any alderman, justice of the peace, or police or other magistrate, upon receiving sufficient proof by affidavit, that any of the provisions of this act have been violated, by any person being temporarily within his jurisdiction, but not residing there permanently, or by any person whose name and residence were unknown, or by any permanent resident or citizen, is hereby authorized and required to issue his warrant for the arrest of such person, and to cause him to be committed or held to bail to answer the charge against him; and any such justice or magistrate, upon receiving proof or probable cause for believing in the concealment of any game or fish mentioned in this act during any of the periods prohibited, shall issue his search warrant and cause search to be made in any house, market, boat, car, vehicle or building; all courts of quarter sessions are hereby invested with jurisdiction to try and dispose of all and any of the offenses against the provisions of this act occurring in the same county.

Costs: Sec. 37. Whenever any officer or constable making complaint of the violation of any of the provisions of this act shall fail to recover the penalty or penalties therein mentioned in any prosecution or suit commenced by him or them pursuant to the foregoing sections of this act, the costs of suit incurred by him or them shall be a charge upon the proper county, and shall be audited and allowed as other county charges are audited and allowed.

Limitation: Sec. 39. All actions for violation of the provisions of this act, except where otherwise therein directed, shall be brought within one year from the time such violation was committed.

Laws of 1897, No. 103, p. 123.

Prima facie evidence: Sec. 8. [Possession of a ferret is prima facie evidence of intent to use it in hunting rabbits in violation of law.]

Limitation; Proceedings; Disposition of penalties; Fund; Imprisonment: Sec. 12. All actions for violation of any of the sections of the provisions of this act[a] shall be commenced within one year from the time such violation was committed, and any magistrate, justice of the peace or alderman, upon information or complaint made before him by the affidavit of one or more persons of the violation of any of the provisions of this act by any person or persons, is hereby authorized and required to issue his warrant under his hand and seal directed to any constable, police officer, game protector or game warden, to cause such person or persons to be arrested and brought before said magistrate, justice of the peace or alderman, who shall hear and determine the guilt or innocence of the person or persons so charged, and if convicted of said offense or offenses, said person or persons shall be sentenced to pay the fine or fines, penalty or penalties attached to such violation, together with costs, one-half of which penalty shall go to the informer, and the remaining one-half shall be forthwith paid to the treasurer of the county in which the offense was committed; and it shall be the duty of the said treasurer at the end of each month to forward the fund so arising to the State Treasurer to be kept by the latter as a fund separate and apart for the use of the Board of Game Commissioners, and to be drawn out upon warrant signed by the president of the Game Commissioners and the Auditor General: Provided, That any defendant on refusing to pay said penalty shall be committed to the common jail of the county for a period of not less than one day for each dollar of penalty imposed, unless that defendant enter into recognizance with one or more sufficient securities to answer said complaint on a charge of a misdemeanor before the quarter sessions of the peace of the county in which the offense is committed, which court, on conviction of the defendant of the offense charged and failure to pay the penalty imposed by this act, together with the costs, shall commit said defendant to the common jail of the county for a period of not less than one day for each dollar of penalty imposed.

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[a] Prohibiting killing deer in waters of streams, ponds and lakes; export of all game; use of ferrets in hunting rabbits; taking game in any other manner than by shooting with a gun; setting or preparing any trap, snare, net, swivel gun, deer lick, pit-fall and turkey blind or pen for any game, or use of artificial light, battery or other deception; and destruction of nests and eggs of game birds. Other provisions of this act seem to be superseded by subsequent legislation.

Approved June 4, 1897.

Laws of 1899, No. 14, p. 17.

Peace officers: Sec. 1. * * * That from and after the passage of the act the constables of the various wards, boroughs and townships of the Commonwealth shall be ex-officio fire, game and fish wardens.

Arrest; Trial; Sunday: Sec. 2. It shall be the duty of said fire, game and fish wardens to enforce all statutes of this State now in force, or that may hereafter be enacted, for the protection of forests and timber lands from fire, and for the protection and propagation of game, game birds, game animals, song and insectivorous birds, and fish, and said constables or wardens shall have authority to arrest without warrant any person or persons caught by them in the act of violating any of the aforesaid laws for the protection of forests and timber lands, game, and food and game fish, and take such person or persons forthwith before a justice of the peace or other magistrate having jurisdiction, who shall proceed without delay to hear, try and determine the matter. Such arrests may be also made on Sunday, in which case the person or persons arrested shall be taken before the proper officer, and proceeded against as soon as may be on a week day following the arrest.

Search; Seizure; Disposition of seized game; Nonliability: Sec. 3. Said constables or wardens shall have power without warrant to search and examine any boat, conveyance, vehicle, fish box, fish basket, game bag or game coat, or other receptacle for game or fish, when they have good reason to believe that any of the laws for the protection of forests and timber lands, game and fish, have been violated; and the said constables shall at any time seize and take possession of any and all birds, animals or fish, which have been caught, taken or killed at any time, in a manner or for a purpose, or had in possession or under control, have been shipped or are about to be shipped, contrary to any of the laws of this State. Any court having jurisdiction of the offense, upon receiving proof of probable cause for believing in the concealment of any bird, animal or fish, caught, taken, killed, had in possession, under control or shipped, or about to be shipped, contrary to law, shall issue a search warrant and cause a search to be made in any place, and to that end may, after demand and refusal, cause any building, enclosure or car to be entered, and any apartment, chest, box, locker, crate, basket or package, to be broken open and the contents thereof examined by said constable. All birds, animals or fish, or nets, or fishing appliance, or apparatus, seized by any constable or warden, shall be disposed of in such manner as may be directed by the court before whom the offense is tried, and such constable or warden shall not be liable for damages on account of any such search, examination or seizure, or the destruction of any nets or fishing apparatus of any kind in accordance with the provisions of this act.

Fees for conviction: SEC. 4. Any constable or warden, upon the arrest and prosecution of any offender to conviction under the provisions of this act, shall, in addition to the fees to which he may be entitled under existing laws, be paid for his services the sum of ten dollars on a warrant drawn by the county commissioners on the county treasurer, one-half of which shall be paid out of the treasury of the respective county, and the remaining half of said reward shall be paid by the State Treasurer into the treasury of said county, out of moneys not otherwise appropriated, upon warrant from the Auditor General, but no such warrant shall be drawn until the respective county commissioners shall have first furnished, under oath, to the Auditor General, a written itemized statement of such expense, and until the same is approved by the Auditor General: Provided, That no county shall be liable to pay for this purpose in any one year an amount exceeding five hundred dollars.

Jurisdiction; Special returns: SEC. 5. Each of said constables or wardens shall, for the purpose of this act, have concurrent jurisdiction throughout his own proper county; and they shall in the first week in each term of the court of quarter sessions of their respective counties make special returns to said court, under oath, of all violations occurring in their respective townships, or which may come or be brought to their notice, of any of the provisions of any law now in force, or that may hereafter be enacted, for the protection of forests and timber lands, game and fish; and it shall be the duty of the judge of said court to see that such returns are faithfully made, and any constable or warden wilfully neglecting or refusing to make such returns, or to prosecute any offense under said laws of which he shall have personal knowledge, or of which he shall have notice in writing by any citizen, giving the name of the offender together with the names of the witnesses, shall be guilty of a misdemeanor, and upon conviction thereof be sentenced to pay a fine of fifty dollars, or to undergo an imprisonment in the county jail of two months, both or either, at the discretion of the court.

Approved March 22, 1899.

Laws of 1901, No. 173, p. 266.

Arrest; Sunday: SEC. 1. Be it enacted, &c., That from and after the passage of this act the game protectors * * * shall have, in addition to the powers conferred upon them by said act [of 1895], the authority to arrest without warrant any person or persons found by them in the act of violating any of the laws of this Commonwealth now in force, or that may hereafter be enacted for the protection of game, of song and of insectivorous birds, and take such person or persons forthwith before a justice of the peace or other magistrate having jurisdiction, who shall proceed without delay to hear, try and determine the matter; such arrest may also be made on Sunday, in which case the person or persons, so arrested, for safe keeping may be committed to the jail for that day, but shall be taken before the proper magistrate and proceeded against as soon as may be on a week day following the arrest.

Search; Seizure; Disposition of goods seized; Nonliability: SEC. 2. Said game protectors shall have power, without warrant, to search and examine any boat, conveyance, vehicle, game-bag, game-coat, or other receptacle for game, when they have good cause to believe that any of the laws of this Commonwealth for the protection of game, of song or of insectivorous birds, have been violated; and the said game protectors shall, at any and all times, have the right to seize and take possession of any and all birds or animals which have been caught, taken or killed, at any time, in a manner or for a purpose, or had in possession or under control, have been shipped or about to be shipped, contrary to any of the laws of this Commonwealth. Any court having jurisdiction of the offense, upon receiving proof of the probable cause for believing in the concealment of any bird or animal caught, taken, killed, had in possession, under control, shipped or about to be shipped, contrary to any law of this Commonwealth, shall issue a search warrant, and cause a search to be made in any place; and to that end may, after demand and refusal, cause any building, enclosure or car to be entered, and any apartment, chest, locker, box, trunk, crate, basket, bag or package, to be broken open and the contents thereof to be examined by said protector. All birds or animals classed as game, found therein in violation of law, shall be seized by the protector making the search, who shall, as soon as may be thereafter, forward said game to the nearest hospital, for the use of the sick or injured therein; the bodies or parts of bodies of all song or insectivorous birds, so taken, shall, unless needed for evidence, be destroyed; all guns, gunning appliances, shooting apparatus, trap or gunning apparel, found in said receptacle or receptacles, where the search warrant is issued against a non-resident, shall be seized by said protector, and held, subject to the payment of the maximum penalty attached by law to the offense charged, and the costs of prosecution; said goods to be sold at public auction, after the lapse of twenty days from the date of seizure, and failure of the reputed owner to appear and defend himself against the charges preferred; and such game protector or protectors shall not be liable for damages on account of any arrest, search, examination, seizure or sale, made in accordance with the provisions of this act.

Obtaining evidence; Disposition of game thus used: Sec. 3. Any of the game protectors of this State shall have the right for the purpose of securing evidence wherewith to convict of violations of the game law, to purchase or sell game, the purchase or sale of which is otherwise forbidden, and shall not be liable to any of the fines or penalties imposed by law for the purchase or sale of game. All game remaining in the hands of a protector, after the purpose for which it was procured shall have been accomplished, shall be forwarded to the nearest hospital for the use of the sick or injured therein.

Resisting officers; Aid for officers: Sec. 4. Any person or persons interfering with any of the game protectors of this Commonwealth in the discharge of their duties, or resisting arrest, shall be liable to a penalty of one hundred dollars, or be imprisoned in the county jail for a period of one day for each dollar of penalty imposed. Any game protector is hereby authorized to call to his aid any citizen or citizens of this Commonwealth, for assistance as needed in making an arrest.

Compensation: Sec. 5. That the game protectors, so appointed, shall receive salary or pay per day, as may be agreed upon by the Game Commission, with expenses not to exceed two dollars per day outside of traveling expenses; said expense account to be itemized and presented under oath. * * * Provided, That the combined expense account of the Game Commission shall not exceed the amount set apart by law to their use.

Approved May 21, 1901.

Laws of 1901, No. 308, p. 612.

Trespass: Sec. 1. Be it enacted, &c., That on and after the passage of this act, any person or persons trespassing on any cultivated lands in this Commonwealth, for the purpose of hunting and trapping and taking therefrom any game birds or game animals, after public notice by the owner, lessee or occupant thereof, such notice to be posted on, and adjacent to such cultivated lands, shall be guilty of wilful trespass, and in addition to the damages recoverable by law shall be liable to the owner, lessee, or occupant in a penalty not exceeding five dollars for each and every such offense.

Arrest; Trial: Sec. 2. Any justice of the peace or alderman, upon information or complaint made before him, by affidavit, of the violation of the provisions of this act by any person or persons, is hereby authorized and directed to issue his warrant, under his hand and seal, directed to any constable or warden of the county, to cause such person or persons to be arrested and brought before said justice or alderman, who shall hear and determine the guilt or innocence of the person or persons so charged; and if convicted of such wilful trespass, shall be sentenced, by such justice or alderman to pay a penalty, not exceeding five dollars, together with costs, one-half of such penalty shall be paid to the owner, lessee or occupant of said land and the remaining half to the school district of the city, borough or township wherein such offense was committed; and if the person or persons, so convicted and sentenced, shall neglect or refuse to pay such penalty and costs, or secure the payment thereof within ten days, he or they shall be committed to the common jail of the proper county for a period not exceeding three months.

Appeal: Sec. 3. If any person or persons, convicted and sentenced under the provisions of this act, shall feel aggrieved thereby, he or they may appeal to the court of quarter sessions of the peace for the county in which the offense was committed, by entering into recognizance, with sureties to be approved by the justice or alderman, to appear before said court; which court shall hear the evidence and determine the guilt or innocence of the person or persons so charged, and on conviction of the defendant or defendants charged and a failure to pay such penalty and costs imposed by the act, shall commit said defendant or defendants to the common jail of the county, for a period not exceeding three months.

Approved July 9, 1901.

Laws of 1903, No. 121, p. 163.

Deputy game protector; Compensation; Bond: Sec. 1. Be it enacted, &c., That the Board of Game Commissioners shall have the power and authority to appoint one competent man in each and every county of the Commonwealth of Pennsylvania, to be called and designated as a deputy game protector, who shall have the same power and perform the same duties as the present game protectors, authorized by law, now have and perform, and receive the same compensation that constables now receive for similar service; and shall, when appointed, give to the Board of Game Commissioners a bond in the sum of three hundred dollars, conditioned for the faithful discharge of his duty; such bond to be approved by the said Commissioners.

Approved April 11, 1903.

Laws of 1903, No. 136, p. 178.

Production of license; Disposition of license fees: Sec. 1. [Under the act requiring nonresidents and unnaturalized foreign born resident to procure a $10 license before hunting in the State license must be exhibited upon demand of any game warden, protector or constable; one-half the fee is to be retained by the county treasurer for use of the county the other half to be forwarded by him to the State Treasurer for use of the Board of Game Commissioners.]

Prima facie evidence; Penalty; Imprisonment: Sec. 2. Possession of a gun in the fields or in the forests or on the waters of this Commonwealth, by an unnaturalized, foreign-born resident or a non-resident of this Commonwealth, without having first secured the license required by this act, shall be prima facie evidence of a violation of its provisions; and any person so offending shall be liable to a penalty of twenty-five dollars for each offense, or in default of the payment thereof, with the costs of prosecution, to suffer an imprisonment in the county jail for a period of one day for each dollar of penalty imposed, unless he or they enter into good and sufficient recognizance to pay said penalty and costs within a period of ten days from the date of conviction, or enter into recognizance to answer said complaint, on a charge of misdemeanor, before the court of quarter sessions of the peace of the county where said offense is charged to have been committed; which court, on the conviction of the defendant or defendants, and failure to pay the penalty or penalties imposed, with the cost of prosecution, shall commit the said defendant or defendants to the jail of the county for a period of one day for each dollar of penalty imposed.

Seizure; Disposition of game, etc.: SEC. 3. All officers of the Commonwealth whose duty it is to protect the game of the Commonwealth, shall have power to seize all guns and shooting paraphernalia, and game in possession or belonging to the suspected parties, within the Commonwealth. The game, upon the conviction of the parties so arrested, shall be forfeited to the State, and forwarded by said officer to the most convenient public hospital, for the use of the sick or injured therein; and the guns and shooting paraphernalia held, subject to the payment of the penalty or penalties imposed, with the costs of prosecution; and in the case of default of the payment thereof for a period of five days from the date of conviction, unless appeal be taken, to advertise the same by public handbill, not less than five in number, conspicuously displayed in the borough or township where the conviction was secured, and after the lapse of ten days from the date of advertisement, to sell said guns and paraphernalia at public auction. The fund thus realized shall be applied, first, to the payment of costs incurred, then to the payment of the penalty imposed, and the remainder, if any, shall be returned to the owner or owners of the property so seized and sold; Provided, That the fact that imprisonment is suffered by any person convicted of violating the provisions of this act, shall not prevent the sale of all guns and hunting paraphernalia so seized, and the application of the fund thus realized to the purposes before mentioned.

Approved April 14, 1903.

Laws of 1903, No. 155, p. 213.

Costs: SEC. 1. Be it enacted, &c., That from and after the passage of this act, whenever any officer of this Commonwealth, whose duty it is by the laws of this State to protect our game, our song or our insectiverous birds, shall, in good faith, bring suit for violation of any of the laws relative to these subjects, and for any legal cause shall fail to recover the costs of record, the same shall be a charge upon the proper county, and shall be audited and paid as costs of like character in said county.

Approved April 16, 1903.

Laws of 1905, No. 143, p. 201.

Special deputies; Compensation: SEC. 1. Be it enacted, &c., That from and after the passage of this act, the Board of Game Commissioners of this Commonwealth shall be empowered to appoint, at their discretion, competent men throughout the Commonwealth, to be known as special deputy game protectors, who in all ways shall possess the rights and powers now given by law to game protectors, and be subject to all requirements and regulations, either of the law or of rules of the Board of Game Commissioners, controlling the action of such game protectors in this Commonwealth: Provided, Such special deputy game protectors shall in no way be entitled to recompense from either the county or Commonwealth for services rendered or expenses incurred in the performance of their duties.

Approved April 18, 1905.

Laws of 1905, No. 180, p. 248.

An Act to provide for the protection and preservation of game, game quadrupeds and game birds, and song and insectivorous and other wild birds, and prescribing penalties for violation of its several provisions.

Killing dogs: SEC. 9. Any dog pursuing or following upon the track of a deer or fawn, within this Commonwealth, is hereby declared to be a public nuisance. Such dog may be killed by any person when seen pursuing or following upon the track of a deer or fawn in this Commonwealth, or by any game-protector, deputy game-protector, game-warden, forestry-warden, or any other officer of the State, whose duty it is to protect any of the game of the State, upon affidavit being made by one or more persons acquainted with the facts, before an officer authorized to administer oaths, that said dog [is] in the habit of, or has been seen or heard running upon the track of or pursuing any deer or fawn in this Commonwealth, within a period of one year from the date of such affidavit. * * *

Separate offense; Forfeiture of guns, etc.: Sec. 11. No person shall hunt or capture or kill in this Commonwealth any deer or fawn, wild-turkey; ruffed-grouse, commonly called pheasant; quail, commonly called Virginia partridge, or woodcock, for wages or hire, or valuable consideration of any description whatsoever, either directly or indirectly; and each day thus employed shall constitute a separate offense. Each and every person who shall offend against any provision of this section shall be liable, upon conviction, to a penalty of twenty-five dollars for each offense, and forfeit all guns and shooting paraphernalia used by him in the commission of such offense, as hereinafter provided.

Forfeiture of boats, etc.; Disposition of proceeds: Sec. 17. * * * All boats, decoys, guns, shooting paraphernalia, or other contrivances or devices of whatsoever description, used by any person or persons * * * in violation of any of the provisions of the game laws of this Commonwealth, shall, unless the fine imposed and costs be paid, be forfeited to the Board of Game Commissioners, who shall destroy or sell the same, at their pleasure, and apply the fund thus arising to the purposes of their appointment.

Prima facie evidence: Sec. 20. * * * The possession of the body or skin, or any part thereof, of either a game-quadruped or a game bird, at any time except during the open season for such game in this State, and fifteen days thereafter, shall in every instance be prima facie evidence that the same is held or possessed in violation of law.

Summary convictions; Disposition of fines; Limitation of prosecution: Sec. 23. [As amended by Laws of 1907, No. 63.] Each and every magistrate, alderman, and justice of the peace of this Commonwealth shall have the power of summary conviction in all matters pertaining to the enforcement of any of the provisions of this act; and all actions for violations of any of said provisions, excepting where the defendant is taken in the act or in a pursuit immediately following said act, shall be commenced by affidavit made within one year of the time of the commission of such offense. Each and every magistrate, alderman, or justice of the peace, on complaint made before him, by the affidavit of any person, of a violation of any of the provisions of this act by any person, is hereby authorized and required to issue his warrant, under his hand and seal, directed to any constable, police officer, game protector, deputy game protector, or any other peace officer of the State whose duty it is to protect the game or wild birds of the State, and to cause such person to be brought before him, the said magistrate, alderman, or justice of the peace, who shall hear the evidence and determine the guilt or innocence of the person charged. If the accused be convicted of such offense, he shall be sentenced to pay the penalty prescribed by the section violated, together with the costs of suit. All penalties collected in cases where the prosecutor is a game protector shall be immediately surrendered by the court receiving the same to such prosecutor, who in turn shall, as soon as may be, either deliver or forward such amount to the Secretary of the Game Commission, who shall deposit the same in the State Treasury, for the use of the Commonwealth. Where any other than a game protector is the prosecutor, one-half of any penalty thus collected shall belong to such prosecutor, and shall be paid to him by the court receiving same, and the remaining one-half of such penalty shall be forwarded by such court to the county treasurer of the county in which the offense was committed, together with a statement of the cause for which said money was collected. It shall be the duty of each county treasurer to keep a record of the cause for which said money was collected, and to forward the same, at least once a month, to the State Treasurer, for the use of the Commonwealth. Any defendant refusing to pay the penalty imposed, together with the costs of prosecution, shall be committed to the common jail of the county, for a period of one day for each dollar of penalty imposed, unless he shall enter into good and sufficient recognizance, with one or more sureties, to answer such complaint, on a charge of misdemeanor, before the court of quarter sessions of the peace in and for the county in which the offense was committed; which said court, on the conviction of the defendant of such offense, and upon his failure to pay the penalty imposed, together with the costs of prosecution, shall commit such defendant to the common jail of the county, for a period of one day for each dollar of penalty imposed: Provided, that any person charged with a violation of any provision of this act may, at his discretion, sign an acknowledgment of the offense committed, and pay to the duly authorized and sworn game protector or deputy game protector the penalty in full, as fixed by the section violated, with costs to that date; and the printed receipt which he shall receive therefor, and which in all instances shall bear the imprint of the seal of the Board of Game Commissioners and the signature of its secretary, shall be evidence of a full satisfaction of the offense committed.

Approved April 22, 1905.

Laws of 1905, No. 227, p. 361.

An Act creating a Department of State Police and providing for appointment of officers and men.

Local officers: Sec. 5. The various members of the Police Force are hereby authorized and empowered to make arrests, without warrant, for all violations of the law which they may witness, and to serve and execute warrants issued by the proper local authorities. They are also authorized and empowered to act as forest, fire, game and fish wardens; and, in general, to have the powers and prerogatives conferred by law upon members of the police force of cities of the first class, or upon constables of the Commonwealth.

Approved May 2, 1905.

Laws of 1907, No. 57.

Wild fowl; Forfeiture of guns, etc.: Sec. 2. [Prohibits use of any craft propelled by any means other than oars, poles, or hand paddles in hunting wild water fowl]. Each and every person who shall violate any provision of this section shall be liable to a penalty of fifty dollars per day for each day on which any forbidden craft or boat may be used to hunt or pursue wild water-fowl, and ten dollars for each other contrivance or device set, placed, or carried contrary to the provisions of law. All boats, decoys, guns, shooting paraphernalia, or other contrivances or devices of whatsoever description, used by any person or persons in violation of the provisions of the game laws of this Commonwealth, shall, unless the fine imposed and costs be paid, be forfeited to the Board of Game Commissioners, who shall destroy or sell the same at their pleasure, and apply the fund thus arising to the purposes of their appointment.

Summary convictions; Disposition of fines; Limitation of prosecution: Sec. 4. [Identical with sec. 23, No. 180, Laws of 1905. See p. 241.]

RHODE ISLAND.

General Laws, 1896, chap. 112, p. 379.

OF BIRDS.

Disposition of fines; Limitation: Sec. 15. [As amended by Laws of 1900, chap. 746.] All fines recovered by virtue of this chapter shall enure one-half thereof to use of the state and one-half thereof to the use of the complainant, and all prosecutions therefor shall be commenced within ninety days after the commission of the offense and not afterwards.

Commissioners of birds; Compensation: Sec. 16. [As amended by Laws of 1901, chap. 809.] There shall be five commissioners of birds, who shall serve without compensation. * * * At the January session of the general assembly in the year A. D. 1902, and in each third year thereafter, the governor, with the advice and consent of the senate, shall appoint five persons to be commissioners of birds to succeed the commissioners then in office; and the persons so appointed shall hold their offices until the first day of February in the third year after their appointment. * * *

Complaint; Search: Sec. 18. Whenever complaint is made on oath to any magistrate authorized to issue warrants in criminal cases, that the complainant believes and has reasonable cause to believe that the laws in relation to birds have been or are being violated in any building or place, such magistrate, if satisfied that there is reasonable cause for such belief, shall issue a search-warrant authorizing any officer, competent to serve a warrant, to search such building or place; but no search shall be made after sunset, unless specially authorized by the magistrate upon satisfactory cause shown.

Chap. 113, p. 383.

OF FERRETS, WEASELS, HARES AND GRAY SQUIRRELS.

Disposition of fines: Sec. 1. [As amended in 1905. Provides a close season for rabbits, hares, and gray squirrels from Jan. 1 to Nov. 1; a fine of $20 for each animal, one-half of fine to be paid to complainant and one-half to state.]

Arrest: Sec. 4. [Added by Laws of 1899, chap. 684.] It shall be the duty of the commissioners of birds and their deputies * * * to enforce the provisions of this chapter and to prosecute every person who shall violate the same. They shall have power to arrest, without warrant, every person whom they shall find pursuing with intent to kill, taking or killing, or having in his possession any undomesticated rabbit, hare or gray squirrel contrary to the provisions of this chapter: *Provided*, that any person so arrested without warrant shall not be detained longer than twelve hours.

Nonliability: Sec. 5. Whenever complaint is made by said commissioners, or either of them, or by their deputies of any violation of the provisions of this chapter, they shall not be required either by themselves or by their deputies to furnish surety for costs, or be liable for costs on such complaint. [Id.]

Seizure: Sec. 6. Any commissioner or his deputy may seize without warrant any undomesticated rabbit, hare or gray squirrel found in the possession of any person at any time when the killing of the same is prohibited by law. [Id.]

Laws of 1899, chap. 678, p. 119.

Nonliability: Sec. 2. The commissioners of birds shall protect birds throughout the state, and shall prosecute every person who shall violate any of the laws of this state relating to birds. Whenever complaint is made by said commissioners, or either of them, or by their deputies, of any violation of any of the laws of this state relating to birds, they shall not be required, either by themselves or by their deputies, to furnish surety for costs on such complaint.

Deputies; Arrest: Sec. 3. [As amended by Laws of 1903, chap. 1098.] Said commissioners in their discretion may appoint any number of deputies, and shall issue commissions under their hands to said deputies, empowering them to execute the duties of such office, and shall record the names of said deputies with the secretary of state. It shall be the duty of every commissioner and deputy to enforce the laws of this State relating to birds, and they shall have the power to arrest, without warrant, every person whom they shall find pursuing with intent to kill, taking or killing, birds, or who shall have birds in his possession contrary to the laws of this state relating to birds: *Provided,* that any person so arrested without warrant shall not be detained longer than twelve hours.

Seizure: Sec. 4. Any commissioner or deputy may seize, without warrant, any birds found in the possession of any person at any time when the killing of such birds is prohibited by law.

Laws of 1905, chap. 1231, p. 63.

Disposition of fines: Sec. 3. [Prohibits sale of ruffed grouse and woodcock at all times; a fine of $20 for each bird, one-half to be paid to complainant and one-half to state.]

Disposition of fines: Sec. 2. [Close season for ruffed grouse, quail, and woodcock from Jan. 1 to Nov. 1; a fine of $20 for each bird; one-half to be paid to complainant and one-half to state.]

Laws of 1907, chap. 1456, p. 67.

Nonresident license: Sec. 1. [Requires nonresidents to procure licenses before hunting].

Production of license: Sec. 5. Every person holding a license provided by this act shall have the same on his person at all times while hunting in this state, and shall present the same for inspection to any person demanding the same; and any person refusing to so present said license for inspection upon demand shall be liable to the same penalty as if he were hunting without such license. A license shall be good only for the person for whom it is issued. Any transfer or loan of such license shall carry a forfeiture of the same.

SOUTH CAROLINA.

Laws of 1907, No. 315, p. 659.

Audubon Society: Sec. 1. *Be it enacted* by the General Assembly of the State of South Carolina, That J. A. B. Scherer, H. N. Snyder, D. R. Coker, Richard I. Manning, B. F. Taylor, O. B. Martin and Thomas F. Parker, their associates and successors, be, and they are hereby, created a body politic and corporate under the name and style of the Audubon Society of South Carolina, and by that name and style they and their associates shall remain and have perpetual succession, with power to take and hold, either by gift, grant, purchase, devise, bequest or otherwise, any real and personal estate not exceeding fifty thousand dollars in value for the general use and advancement of the purposes of the said corporation, or for any special purpose consistent with the charter, and such property shall be exempt from taxation, to make rules and by-laws not inconsistent with the laws of this State for its government and for the due and orderly conduct of its affairs, and for the execution of the powers herein conferred, and to change the same from time to time, and to have and use a common seal, and to change the same at pleasure.

Officers: Sec. 2. That the officers of said corporation shall be a President, Vice-President, Secretary and Treasurer, and such other officers as may be fixed by the by-laws.

Objects: Sec. 3. The objects for which this corporation is formed are to promote among the citizens of South Carolina a better appreciation of the value of wild birds, non-migratory fish, and animals to men and the State; to encourage parents and teachers to give instruction to children on this subject; to stimulate a public sentiment against the destruction of wild animals, non-migratory fish, and wild birds and their eggs; to secure the enactment and enforcement of proper and necessary laws for the protection and preservation of the wild birds, non-migratory fish, and animals of the State; to provide for the naming of special officers and investing them with necessary power, who shall work under the direction and control of the Audubon Society of South Carolina, looking to the rigid enforcement of the present game, non-migratory fish, and bird protective laws and such other laws of like nature as are herein and may hereafter be enacted; to distribute literature bearing on these topics among the members of the Society and other persons; and to raise and provide funds for defraying the necessary expenses of the Society in the accomplishment of the purposes herein named.

Separate offense; Prima facie evidence: Sec. 4. * * * and each bird or game animal so killed [in the State] or taken or had in possession, received for transportation or transported, contrary to the provisions of this Act, shall constitute a separate offense. The reception by any person or corporation within this State of any such birds or game for shipment to a point beyond the limits of this State shall be *prima facie* evidence that said birds or game were killed within the State for the purpose of conveying same beyond its limits; but the provisions of this Section shall not apply to common carriers into whose possession birds or game shall come in the regular course of their business for transportation while they are in transit through the State from any place without the State: * * *

Game protection fund; Production of license: Sec. 8. * * * The Clerks of the Courts shall keep a record of each license [non-resident and alien] issued, in a book furnished by the Audubon Society, and shall make a report to the Audubon Society on the first day of December of each year, and at the close of the hunting season in their respective Counties, on forms provided by said Audubon Society, and shall transmit at the same time all money received for each license to the Treasurer of the State to constitute a fund known as the "Game Protection Fund," which shall be paid out upon the order and vouchers of the Treasurer of the Audubon Society, who shall make an annual report to the Governor of South Carolina, showing the receipts and expenditures of the Society for the year. Every non-resident or alien person shall carry with him his license, and shall upon demand exhibit it to any warden or police officer, and a refusal to so exhibit his license shall constitute an offense under this Section. The record of licenses kept by the Clerks of the Courts shall be open at all reasonable hours to the inspection of any person. Each day that any non-resident or alien shall hunt within the State of South Carolina without having procured the required license shall constitute a separate offense.

Treasurer; Game wardens: Sec. 10. The Governor of the State shall, upon the passage of this Act, upon the recommendation of the Audubon Society of South Carolina, appoint from time to time bird, non-migratory fish, and game wardens, and a Treasurer of the Audubon Society, whose terms of office, unless otherwise provided for, shall be during good behavior or until their successors are appointed. The Governor shall issue a commission to the Treasurer of the Audubon Society and to each person appointed as a warden, and shall transmit such commission to the office of the Clerk of the Court for the County in which the prospective Treasurer or bird, non-migratory fish and game warden is a resident. No tax or fee shall be charged or collected for said commission. Any of the said wardens may be removed by the Governor upon proof satisfactory to him that they are not fit persons for said positions. The compensation of said wardens shall be fixed and paid by the Audubon Society.

Search; Seizure; Prosecutions; Fines: Sec. 11. A duly commissioned bird and game warden is authorized upon making an affidavit before a Magistrate or in any Court of the State, that there exists reasonable grounds to believe that birds or game are in possession of a common carrier in violation of the law, is authorized to procure a search warrant and to open and enter and examine all cars, warehouses and receptacles of common carriers in the State, where they have reason to believe any game, taken of held in violation of this Act, is to be found and seize the same. It shall be the duty or said bird and game wardens to prosecute all persons or corporations having in their possession any birds, non-migratory fish, or game contrary to the bird, fish and game laws of this State. It shall be their duty to see that the bird, non-migratory fish and game laws are enforced and to obtain information as to all violations of the said bird, non-migratory fish and game laws. All monies obtained from fines or forfeitures shall be deposited with the State Treasurer to the credit of the "Game Protection Fund."

Disposition of seized game: Sec. 12. Any bird, non-migratory fish or animal caught, taken or killed, shipped, or received for shipment, had in possession or under control by any person or corporation contrary to the provisions of law, which may come into the possession of the bird and game wardens, shall be sold at auction within the State, and the bird and game warden disposing of the same shall issue a certificate to the purchaser certifying that the said birds, non-migratory fish or animals were legally obtained and possessed, and anyone so acquiring said birds, non-migratory fish or animals within this State can have the right to use them as if same had been sold, killed or possessed in accordance with the laws of this State. The money received from the sale of such confiscated birds, non-migratory fish or game shall be forwarded by the game warden to the Treasurer of the State and be placed to the account of the "Game Protection Fund."

Wardens; Oath; Bond; Powers: Sec. 13. Every warden appointed shall before entering upon the duties of his office take and subscribe before the Clerk of the County of which he is a resident, an oath to perform the duties of said office, together with the oath prescribed for police officers, and shall execute a bond in the sum of one hundred dollars for the faithful discharge of his duties, and the said oath and bond shall be recorded by the Clerk in his office, and the warden so qualified shall possess and exercise all the powers and authority held and exercised by the Constable at common law and under the Statutes of this State. The Clerk shall not charge more than fifty cents for taking and recording said oath. The bird and game wardens when acting in their official capacity shall wear in plain view a metallic shield with the words "Bird and Game Warden" inscribed thereon.

Reports: Sec. 14. The bird and game wardens when appointed and qualified shall work and be under the control and direction of the Audubon Society of South Carolina, and shall make reports in writing to the Society as it may require.

Approved Feb. 19, 1907.

Code of Laws 1902, vol. 2, p. 411.

Disposition of fines: Sec. 540. [Prescribes season when deer may be killed and imposes penalty for violation,] one-half thereof shall go to the informer, and the other half thereof to the use of the said county.

Jurisdiction; Disposition of fines; Conviction: Sec. 544. All of the penalties and forfeitures mentioned in the preceding Section [prohibiting fire hunting at night] shall and may be recovered before any Magistrate in the County where any of the said offenses shall be committed, and when received shall be divided and paid one-half to and for the use of the poor of the County where the offense shall be committed and the other half to the person who will inform for the same; and the oath of one credible witness, or the confession of the party accused, shall be allowed as sufficient evidence to convict the offender by every Magistrate before whom information shall be made of any of the offenses aforesaid: Provided, That where the owners of any lands shall prosecute for any unlawful hunting and ranging on his or her lands, the oath of such owner shall be sufficient evidence to convict the offender; but in that case the whole penalty shall go to the use of the poor of the County.

Acts of 1903. No. 75, p. 116.

Prima facie evidence: Sec. 1. [Amending an act amending sec. 431, vol. 2, Revised Statutes, 1893.] * * * That the handling, possession, control or ownership of any partridge or quail, sold or offered for sale, or shipped or exported, shall be prima facie evidence of a violation of this Section [prohibiting sale and export of quail, deer, and wild turkey for five years,] and the burden of proof shall be upon any persons so handling, possessing, controlling or owning any such partridge or quail to show that such partridge or quail was imported from another State or Territory. * * *

Acts of 1905, No. 489, p. 963.

County game warden: Sec. 1. *Be it enacted* by the General Assembly of the State of South Carolina, That the Governor shall, with the advice and consent of the Senate, appoint for each County a game warden, whose duty it shall be to see that the law for the protection of game, game birds and insectivorous birds shall be strictly enforced.

Road and jury duty: Sec. 2. That said game warden shall be exempt from road and jury duty.

Report: Sec. 3. Said warden shall report to each term of the Court of General Sessions all violations of the law for the protection of game, game birds and insectivorous birds and what has been done to punish the offenders.

Approved March 7, 1905.

Acts of 1905, No. 463, p. 933.

An act to preserve game, fish, shell fish and terrapin in and on the public lands and waters of the state, and to provide license.

County supervisors and commissioners; Inspectors; Compensation: Sec. 8. The County Supervisors and County Commissioners are charged with the enforcement of the provisions of this Act in each County (any citizen, however, having the right to proceed upon any infraction thereof as in the case of any other infraction of the law). And to that end, the County Board of Commissioners of each County be, and they are hereby, authorized and empowered to put some competent person or persons as Inspector or Inspectors, who shall be charged with the enforcement of this Act in their respective Counties, and who shall receive such compensation as the County Board of Commissioners of each County may determine, not to exceed in the aggregate ten per cent. of the licenses and fines paid to the County under this Act. * * *

Arrest; Seizure; Sale of seized game: Sec. 12. Any person found in the act of violating the provisions of this Act may be at once arrested, and any boat, vessel, flat, tongs, dredge, net or lines, gun or other instruments or utensils in his possession and used for the purpose of so violating the provisions of this Act, and all game fish, shell fish or terrapin, in his possession, procured in violation of the provisions of this Act, may be seized, and upon conviction of such person of such violation, all the same shall be forfeited to the State and shall be sold as in the case of the sale of other property sold under judicial processes, and the proceeds divided equally between the State and the County.

Approved Feb. 22, 1905.

SOUTH DAKOTA.

Revised Codes, 1903. Political Code, Art. 23, p. 554.

[Small game.]

Prima facie evidence: [SEC.] 3056 [As amended by Laws of 1903, chap. 150. Prohibits export of game.] * * * the possession of such game by any person, railroad company, express company or other common carrier shall be deemed presumptive evidence of the violation of the laws of this state enacted for the protection of game. * * *

Prima facie evidence: [SEC.] 3058. Any person or persons traveling in any manner in any part of this state outside of the immediate bounds of the inhabited parts of any village, town or city in possession of any kind of a shot gun and ammunition with dog or dogs ordinarily used or kept for the use of hunting any game mentioned in this article from the first day of July, and to the first day of September each year shall be presumed to have violated or attempted to violate the provisions of this article as to unlawfully shooting or taking of game mentioned in this article, the taking or shooting of which is prohibited during said time and proof of the possession of such property during said time and in such place shall be prima facie evidence of the guilt of such person or persons to so violate or attempt to violate the provisions of this article as to shooting, killing or taking such game: * * * and the fact that any traps, snares or other devises used for the purpose of trapping, snaring or taking game birds, are found in the possession of, or upon the premises of any person or persons, shall be prima facie evidence of guilt, violation or attempted violation by such person or persons of the provisions of this article.

Forfeiture and sale of appliances: [SEC.] 3059. Any person offending against any of the provisions of any section of this article shall be punished not only by the fine herein prescribed, but also by a forfeiture of any gun or guns, dog or dogs, trap or other sporting implement in his or their possession while so offending, and any court having jurisdiction may, upon due proof, adjudge the same forfeited, and order such traps to be destroyed, and may order any dog or dogs, gun or guns so used to be sold at either public or private sale, and the proceeds of such sale shall be paid to the county, to be placed in the county game fund. * * *

Wardens; Peace officers; Duties; Oath: [SEC.] 3061. The fish wardens who are now appointed, or who may hereafter be appointed, shall be game wardens. Each game warden, sheriff, constable, or other officer of the law, is charged with the duty of enforcing the provisions of this article. He shall arrest or cause to be arrested, all violators thereof, and shall prosecute all offenses against the same. He shall have the power to arrest without a warrant any person or persons found violating any of the provisions of this law, when detected in the commission of the act. And he may seize and take into his custody all the birds, or any part thereof, shot, killed or taken during the period when the shooting, killing or taking is not permitted by this article. Each warden, before entering upon the duties of his office, shall take an oath to support the constitution and faithfully and impartially discharge the duties of his office, which oath and appointment shall be filed with the secretary of state.

Deputies: [SEC.] 3062. Each warden may appoint not more than ten deputies, residents in his county. Such appointment must be made in writing, and shall be revocable in writing at the pleasure of the principal. * * *

Jurisdiction: [SEC.] 3063. Each warden shall have jurisdiction throughout the state to make complaint against, arrest and prosecute, all violators of the laws for the protection of game, and each deputy shall have like jurisdiction throughout his county.

Duties; State's attorney; Fees: [Sec.] 3064. It is hereby made the duty of each warden and deputy warden, within his county, to see to the enforcement of the provisions of the laws for the protection of game, and to make complaint and to prosecute all violators of the provisions of said laws, which shall come to his knowledge, or of which he shall be credibly informed; and such wardens and their deputies, within their respective counties, are authorized to arrest without warrant any person found violating the provisions of said game laws when detected in the act, or found with the game in their possession at the time of their arrest, and to take the party offending before any court having jurisdiction to try the offender, or to give immediate notice thereof to the state's attorney of the county in which the arrest was made, who shall forthwith make complaint or information against such offender, and prosecute the same. The fees therefor shall be the same as now provided by law for like service in criminal actions.

Disposition of fines: [Sec.] 3065. In all prosecutions instituted in the manner set forth in this article the warden, deputy warden, or other officer instituting such prosecution shall be entitled to one-half of the penalty or fine when recovered, and the remainder of such penalty or fine shall go to the county game fund.

Disposition of fines: [Sec.] 3066. Any person making complaint and furnishing evidence which shall lead to the prosecution and conviction of any offender under the provisions of the game laws, shall be entitled to one-half the fine or penalty, when recovered in such prosecution, and the other half to go to the county game fund.

Game fund: [Sec.] 3068. All costs that shall be collected and all fines and penalties or shares thereof which shall be recovered and paid into the county treasury, and all moneys received for hunters' licenses, and the proceeds of any and all game, dogs and guns sold, shall be kept as a separate fund to be called a game fund, to be expended by the board of county commissioners toward the payment of expenses of the game wardens which shall be incurred in the enforcement of the provisions of the game laws of this state.

Witnesses; Exemption: [Sec.] 3069. In any prosecution or judicial proceeding under the provisions of any of the game laws of this state any person participating in or in any way accessory to any violation thereof, may testify as a witness against any other person violating the same, without criminating himself by so doing, and nothing in the testimony which he shall so give, or in any admissions he shall make in relation thereto, as such witness shall at any time be used against him in any criminal proceedings against him for such violation.

Search: [Sec.] 3070. Any court having jurisdiction of any of the offenses under this article, upon receiving proof by affidavit of probable cause for believing in the concealment of any game, the killing or taking of which is prohibited in this article, shall issue a search warrant and cause search to be made in any place therefor, and to that end the officer serving such warrant may cause any building, enclosure, or car named therein to be entered, and any apartment, chest, box, locker, crate, basket or package to be broken open and the contents thereof examined.

Joining offenses: [Sec.] 3071. In prosecutions under game statutes of this state it shall be permissible in any indictment, information or complaint to join in one count or statement the several offenses, or any number of them which are named in any section of such statutes, when not repugnant in their nature or penalty, and such count or statement shall be sustained by proof of any one of the offenders [offenses] charged.

Game found; Seizure; Sale: [Sec.] 3072. No person shall at any time acquire or have any property in any game which has been taken, captured or killed, or had in possession contrary to law, but the same shall be the property of the state, to be disposed of for the benefit of the fund to enforce the game laws, and any warden or his deputy may seize the same when found, and sell the same, together with any dogs or guns forfeited, and pay the proceeds of the sale to the county treasurer, to be placed in the game fund, and the possession of the officer so seizing the same, and that of any one who shall thereafter purchase the same, shall be deemed lawful.

Resisting officer: [SEC.] 3074. Whoever shall resist or obstruct any officer by force, threat, or otherwise in the discharge of his duties under this article shall be guilty of a misdemeanor and be punished by a fine of not less than ten dollars, nor more than fifty dollars for such offense.

Limitation: [SEC.] 3075. All prosecutions under this article shall be commenced within one year from the time the offense was committed.

Jurisdiction; Prosecutions; Costs; Imprisonment: [SEC.] 3076. All justices of the peace and police justices within their jurisdiction shall have concurrent jurisdiction with the circuit court to try and determine all offenses arising under the provisions of this article and of all the laws of this state for the protection of game. All prosecutions shall be in the name of the state and shall be instituted and prosecuted in accordance with the provisions of the law for criminal procedure in the courts where the prosecution is had. In all convictions the costs of the prosecution shall be taxed against the defendants as in other criminal cases and the court shall order as a part of the judgment that the defendant shall stand committed to jail until the fine and costs shall be paid. *Provided*, the term of imprisonment shall not exceed thirty days in any one case.

Political Code, Art. 24, p. 558.

[Big game.]

County warden; Salary: [SEC.] 3077. [As amended by Laws of 1905, chap. 116.] On petition therefor, signed by not less than ten citizens of any county of the state where large game exists, the governor may in his discretion appoint a suitable person as game warden for such county, whose jurisdiction shall extend to any county in the state, who shall hold such position until a successor is appointed by law. The appointment of a successor shall operate as a termination of the term of office of any one previously appointed warden. Such game warden shall receive a salary of seventy-five ($75) dollars per month, which shall be paid from the game fund of the county. But in no case shall such salary be a charge upon or obligation of the county or state.

Bond: [SEC.] 3078. [Requires warden to give $500 bond and take oath of office.]

Powers; Duties; Information; Arrest; Seizure: [SEC.] 3079. [As amended by Laws of 1905, chap. 116.] The game warden shall at all times personally supervise the protection and preservation of the large game hereinafter mentioned [buffalo, elk, deer, mountain sheep], within the state, and shall make information before a justice of the peace or other proper officer against offending person, persons or corporation, of any violation of the provisions of this article, of which he has, or may receive creditable [sic] knowledge. He shall be an executive officer, and is hereby authorized and it is made his duty to arrest, without a warrant, any person or persons, found violating any of the provisions of this article, when detected in the act of such violation. When any arrest is made for the violation of any of the provisions of this article, it is the duty of the officer making such arrest to receive and take into his custody any carcass or parts of a carcass of any game in this article mentioned, found in the possession of such person or corporation at the time of such arrest, and at the same time to seize and take into his custody any gun or guns found in the possession of such person or corporation. The game warden shall at all times when possible, during the months of September, October, November and December, take the field in person in the performance of his duties.

Liability: [SEC.] 3080. Whenever the attention of any game warden is called to a violation of any of the provisions of this article within his county, or whenever any game warden shall have personal knowledge of any such violation, and he shall fail to take proper steps for the arrest and conviction of any person, persons or corporation so violating, he shall be deemed guilty of a misdemeanor.

Deputies; Compensation; Liability; Oath: [SEC.] 3081. The game warden shall appoint deputy game wardens for his county, whenever necessary to provide guides as hereinafter provided, or when otherwise necessary. Such deputies shall be residents of the county for which they are appointed. Such deputies shall receive no stated compensation, but it shall be their duty to immediately report to the warden any violation of the provisions of this article of which they have knowledge. Failure so to do is a misdemeanor and shall subject the delinquent deputy to a fine of not more than twenty-five dollars upon conviction. Such appointments may be revoked by the warden at any time.

Prima facie; Evidence: [SEC.] 3088. [As amended by Laws of 1905, chap. 116.] * * * The possession of the carcasses, skins, heads or antlers of such animals, in excess of the number as herein provided [1 elk, 1 buffalo, 2 deer, 1 mountain sheep in one year], shall be considered prima facie evidence of the violation of the provisions of this section, except when in the possession of an operating taxidermist for stuffing or mounting.

Production of license; Search: [SEC.] 3090. It shall be the duty of all persons holding licenses to produce the same when demanded by any game warden, deputy game warden, sheriff, deputy sheriff or constable. The game warden or any of his deputies are hereby authorized to make, within his or their county, reasonable examination of any tent, wagon, or other place where hunters might conceal game, or hunter's equipment, where reasonable suspicion exists that the game law is being violated.

Disposition of fees and fines: [SEC.] 3093. All moneys received from licenses or from fines shall be paid to the county treasurer of the county wherein the same are received and by him placed in the game fund of the county.

Peace officers; Arrest; Search: [SEC.] 3094. Any sheriff, deputy sheriff or constable is hereby authorized to make arrests for violation of any of the provisions of this article, and without a warrant, whenever such violation occurs within sight of such officer, and they are hereby authorized to make search where suspicion exists that this law is being violated, as in section 3090 provided for game wardens and deputy game wardens.

Confiscation; Sale: [SEC.] 3095. * * * Upon conviction [for violation of the game laws] the gun or guns, carcass or carcasses, seized at the time of the arrest of such person so convicted shall be forfeited, and the court before whom such conviction is had may, upon due proof, adjudge the same to be forfeited and order the same to be sold at public or private sale, and the proceeds of such sale shall be paid to the county treasurer and by him placed in the game fund of the county.

Jurisdiction: [SEC.] 3096. Justices of the peace of the state shall have jurisdiction of all offenses against this article in their respective counties.

Separate offense: [SEC.] 3097. [Each act of hunting without license or in close season is a separate offense.]

Political Code, Art. 25, p. 563.

County wardens; Deputies: [SEC.] 3104. It shall be the duty of the governor of this state on or before the first day of March in each and every year, to appoint one person in each of the organized counties of this state as a fish warden, who shall hold such office for the period of one year, or until his successor is appointed and qualified. That the fish warden so appointed shall appoint not to exceed ten persons who are residents of his county, as his deputies, each of said deputies having the same power and authority as vested by this article in said fish warden.

TENNESSEE.[a]

Acts of 1905, chap. 455, p. 954.

State warden: Sec. 1. * * * That the Department of Game, Fish, and Forestry be, and the same is hereby, created as one of the departments of the State, and that the Governor shall on the passage of this Act appoint and commission a citizen of Tennessee as State Warden of game, fish, and forestry, and octennially thereafter, who shall serve without salary.

County and special wardens: Sec. 2. That said State Warden of game, fish, and forestry shall be authorized and empowered to appoint and commission in each county of the State a citizen of said county as County Warden of game, fish, and forestry, and to further appoint special Wardens for the State at large as in his judgment the necessity for such appointment may arise.

Deputy wardens: Sec. 3. That the County Wardens of game, fish, and forestry are authorized and empowered to appoint deputies in such number as in their judgment the requirements in their respective counties may demand.

Bond; Oath of office: Sec. 4. That the State, County, [and] Special Wardens shall each give bond in the sum of five hundred dollars, and the Deputy Wardens in the sum of two hundred and fifty dollars each, for the faithful performance of their respective duties, said bonds to be filed in the Department of Game, Fish, and Forestry. All Wardens shall, on appointment, take the oath prescribed for public officers.

Removal of wardens: Sec. 5. That the State Warden may appoint a secretary to conduct the correspondence and detail work of his department, but the salary or compensation of said Secretary shall be paid by the State Warden. When any charge or charges are preferred against any County, Special, or Deputy Warden for malfeasance, misfeasance, or nonfeasance in office, or for any other reason which in the judgment of the State Warden is sufficient, he shall investigate the case and may remove said Warden at pleasure and appoint, or cause to be appointed, another in his stead. Any Warden who shall act, or assume to act, after notice of such removal, shall forfeit his bond.

Duties; Compensation: Sec. 6. That all Wardens appointed under this Act are hereby constituted conservators of the peace, and it shall be their right, power, and duty to enforce all provisions of Chapter 169, Acts 1903, known as the "General Game Law;" Chapter 118, Acts 1903, known as "An Act to protect nongame birds;" Chapter 91, Acts 1901, known as the "Written Permission Law;" Chapter 121, Acts 1901, known as the law prohibiting the shipment of quail, and all other laws for the protection of the game, the birds, the fish, and the forests of the State as the same may now exist or hereafter be enacted. All fines, penalties, forfeitures, or licenses collected under any laws which said Wardens are authorized and called upon to enforce shall go to that Warden so acting or making or causing the arrest, or securing the conviction, as compensation for his services, and the State Warden shall make to each General Assembly a report of all receipts and disbursements and such other information and recommendations as in his judgment may be necessary and proper.

Duties and powers of wardens: Sec. 7. That all Wardens appointed under this Act shall each and every one have and exercise all the rights, powers, and authority of the Sheriffs of the respective counties, with respect, however, only to those laws which they are appointed to enforce and according to the terms of those laws as well as of this Act. They may serve process and have power to make arrests, without warrants, of offenders and take them before any Justice of the Peace or Criminal Court, there to be dealt with according to law, and as the nature of the case may demand.

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[a] The official publication of the laws of Tennessee for 1907 was not available when the bulletin went to press, and as material amendments were made during this session and their effect upon existing law not known the sectiens are given as published by the State warden in his pamphlet for 1907-8.

Acts of 1905, chap. 515, p. 1159.[a]

Prosecutions; Compromising cases: Sec. 6. That prosecutions and actions for penalties under this Act [amending the "General Game Law"], or any other law for the protection of game, shall be in the name of the State of Tennessee, and must be brought on the order of the State Warden or a Warden appointed under the Department of Game, Fish, and Forestry, and in all actions or prosecutions each bird or animal or part thereof killed or held in violation of law shall constitute a separate offense; and the State Warden may compromise or discontinue cases where the violations were technical or where, in his judgment, the prosecution or fine would be oppressive.

Acts of 1903, chap. 118, p. 212.

[An act to protect non-game birds of Tennessee.]

Charge to grand juries: Sec. 9. That the grand juries of the Circuit and Criminal Courts of the State shall have inquisitorial authority over all violations of any of the provisions of this Act, and upon probable cause, shall make presentment without a prosecutor; and that the Judge having criminal jurisdiction in the various counties in Tennessee shall give this Act specially in charge to the grand juries at every term of the courts.

Acts of 1903, chap. 169, p. 374.

Arrest: Sec. 8. That any Justice of the Peace, upon the sworn statement of any individual that any of the provisions of this Act[b] have been, or are being violated, shall issue his warrant of arrest directed to any game Warden, Sheriff, Constable or other peace officer commanding that said offender be at once arrested and held for trial, and said offender shall be tried and if found guilty, punished as herein provided.

Sworn statements; Perjury: Sec. 10. * * * Any Game Warden, Sheriff, Deputy Sheriff, Constable or other officer of this State shall have the right to demand of any nonresident having game in his possession, and which he proposes to take out of the State, an inspection of said license and sworn statement, and a refusal on the part of said nonresident to exhibit said license and sworn statement is hereby declared to be a misdemeanor.

Any person or persons violating this section or any of the provisions thereof shall be guilty of a misdemeanor and upon conviction shall be fined in a sum not less than $50 nor more than $100 for each offense, and any false swearing in the sworn statement herein required shall be punishable as perjury.

Acts of 1907, chap. 185.

Arrest; Appeal: Sec. 3. That where any person is arrested for a violation of the game, fish, and forestry laws of the State, as the same may now exist or hereafter be enacted, it shall be the duty of the Warden making the arrest to take the person or persons so arrested without delay before some Justice of the Peace, who shall hear the evidence and decide the case; and if the person or persons so tried shall be found guilty, then the Justice shall impose the fine fixed by law. Any person so convicted and fined shall, however, have the right of appeal to the Criminal or Circuit Court upon giving bond and security for the amount of the fine imposed and costs, or taking the paupers' oath and giving an appearance bond. All Wardens shall report without delay every arrest, and also each case tried, to the Department of Game, Fish, and Forestry. Blank forms for said purpose shall be furnished them by said department. Nothing herein, however, shall be construed to prevent the State Warden from exercising the authority already conferred by law by Section 6, Chapter 515, Acts 1905.

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[a] Section 5 of this Act authorizes the State Warden to import pheasants or other game birds or their eggs for distribution, and to take game at any time for propagation or distribution.

[b] The General Game Law.

Summoning witnesses: Sec. 4. That no person shall be excused from testifying in any action, suit, or prosecution brought for a violation of the game, fish, and forestry laws upon the ground that his testimony might tend to convict him; but such person shall not be prosecuted for any such offense about which he has been compelled to testify. Where the Department of Game, Fish, and Forestry has been furnished information of the violation of any game, fish, or forestry law, the State Warden may proceed to the place where said offense is alleged to have been committed, and within said county summon and examine under oath witnesses to ascertain the facts and to avoid useless and frivolous indictments or prosecutions. Any one so summoned refusing to attend or testify under the provisions of this section or Act shall be subject to a fine of not less than twenty-five nor more than fifty dollars, and witnesses shall be paid by the department the same fees as are now allowed by law.

Resisting wardens: Sec. 5. That any person or persons who shall threaten with violence, resist, or interfere with a Warden in the discharge of his duties shall be subject to the same penalties now imposed by law upon those who resist or interfere with other officers.

Commissions: Sec. 13. That the offices of all County, Special, and Deputy Wardens shall terminate on the first of July of each and every year, and that it shall be the duty of the Department of Game, Fish, and Forestry to take new bonds on reappointments of Wardens as well as on new appointments.

Seizure; Search; Punishment of wardens: Sec. 17. That the State, County, Special, and Deputy Wardens appointed to enforce the provisions of this or any other Act for the protection of the game, the fish, and the forests of the State are authorized to seize and confiscate any game taken or held in violation of law.

Where any Warden has information or has reason to believe that any company, corporation, or other person is concealing game for the purpose of sale, in violation of law, or for shipment beyond the limits of the State, then such Warden may, with a warrant, make search for said game and examine any box, barrel, wagon, car, or cold-storage house, or other place or receptacle where said game is supposed to be concealed.

And any warden who shall maliciously abuse his power or duty or trust in such or any other proceeding, or willfully fail to do his duty, or shall collude with any violator of the game, fish, or forestry laws, to evade same or any part thereof, or shall receive any bribe of money or other consideration of value not to prosecute or enforce any of said laws, shall be liable, upon conviction therefor, to a fine of not less than one hundred nor more than two hundred dollars and imprisonment not exceeding six months.

Fines and forfeitures: Sec. 18. That all moneys arising from fines, forfeitures, or prosecutions under any law for the protection of the game, the birds, the fish, or the forests of Tennessee, now existent or hereafter enacted, shall be paid to the Department of Game, Fish, and Forestry, which department shall apply so much thereof as may be necessary to the payment of the expenses of collecting same, and shall pay one-half of the balance, not exceeding $50 in any one case, to the Warden upon whose information or at whose instance the action was brought. The balance of such receipts shall be available for expenses in enforcing the various provisions of law for the protection of the game, the birds, the fish, and the forests, and the department shall make a full report to each Legislature of all such receipts and disbursements.

TEXAS.

Laws of 1907, H. B. No. 379.

Game, fish, and oyster commissioner: Sec. 1. Be it enacted by the Legislature of the State of Texas: In order that the provisions of this act may be carried out it is hereby provided that the Fish and Oyster Commissioner shall hereafter be known as the Game, Fish and Oyster Commissioner, and in addition to the duties now imposed upon the Fish and Oyster Commissioner, he shall hereafter perform all the duties imposed by this act and shall have and execute all the additional authority herein provided. It is expressly provided, however, that nothing in this act shall be construed as in any way repealing any law existing or hereafter enacted relating to fish and oysters and wild game and wild birds, except to change the official titles of the Fish and Oyster Commissioner to Fish, Game and Oyster Commissioner, and fixing his additional powers and duties.

Duties and powers: Sec. 2. It is hereby made a special duty of the Game, Fish and Oyster Commissioner to enforce the statutes of this State for the protection and preservation of wild game and wild birds, and to bring or cause to be brought actions and proceedings in the name of the State of Texas to recover any and all fines and penalties provided for in the laws now in force or that may hereafter be enacted relating to wild game and wild birds. Said Game, Fish and Oyster Commissioner may make complaint and cause proceedings to be commenced against any person for violation of any of the laws for the protection or propagation of game or birds without the sanction of the county attorney in which such proceedings are commenced, and in such case he shall not be required to furnish security for costs. Said Commissioner shall at any and all times seize and take possession of all birds and animals that have been caught, taken or killed, or had in the possession or under control, or have shipped contrary to any of the laws of this State, and such seizure may be made without a warrant. All birds or animals seized by the Commissioner shall be disposed of in such manner as may be directed by any court having competent jurisdiction to hear and determine cases for a violation of the game and bird laws of this State.

Arrest: Sec. 3. Said Game, Fish and Oyster Commissioner shall have the same power and authority to serve criminal process as sheriffs, and shall have the same power as sheriffs to require aid in executing such process. Said Commissioner may arrest without warrant any person found by him in the act of violating any of the laws for the protection or propagation of game or wild birds, and take such person forthwith before a magistrate having jurisdiction. Such arrests may be made on Sunday, and in which case the person arrested shall be taken before a magistrate having jurisdiction, and proceeded against as soon as may be, on a week day following the arrest.

Report: Sec. 4. Said Commissioner shall at the close of each calendar month file with the Secretary of State a report in writing, stating the service performed by him during the last preceding month, including a detached statement of the suits commenced at his instance and the disposition made of same, and any other particulars he may think proper, and no payment for services performed or expenses incurred by said Commissioner shall be made until he shall present to the Comptroller of Public Accounts, in addition to the usual certificate of performance and payment, a certificate from the Secretary of State that he has made the report required by this act.

Chief deputy: Sec. 5. Said Game, Fish and Oyster Commissioner shall have power to appoint a chief deputy who shall maintain an office in the Capitol of the State; said chief deputy shall take the constitutional oath of office and shall act as general assistant to said Game, Fish and Oyster Commissioner, and during the absence or sickness or disability of the Commissioner he shall exercise the duties of said Commissioner. Said chief deputy shall devote his entire time to the work of his office, and he shall receive an annual salary of $1,800 and his actual and necessary expenses incurred by him in the discharge of the duties of his office, to be paid monthly on the warrant of the Comptroller of Public Accounts and on the approval of his accounts and vouchers therefor.

Deputies; Salaries: Sec. 6. The said Game, Fish and Oyster Commissioner shall also have power to appoint deputy game commissioners, who shall have the same power and authority as herein provided for the Game, Fish and Oyster Commissioner himself, subject to the supervision and control of and removal by the said Game, Fish and Oyster Commissioner. Said deputy commissioners shall receive $3.00 per day for each day actually spent in the discharge of their duties under the direction of the Commissioner, and their actual expenses necessarily incurred when so employed. To be paid monthly on the warrant of the Comptroller of Public Accounts on the approval of itemized vouchers, verified under oath and certified and approved by the Game, Fish and Oyster Commissioner. The Game, Fish and Oyster Commissioner shall receive in addition to the salary now paid him as Fish and Oyster Commissioner [$1,800], the sum of $700 per annum, and his actual and necessary expenses incurred in the discharge of his duties, to be paid monthly on the warrant of the Comptroller of Public Accounts for the salaries and expenses of the Game, Fish and Oyster Commissioner, his chief deputy and the other deputies herein provided for, and shall not exceed the amount received by the State Treasurer from the sale of hunting licenses and the collection of fines and penalties in cases for the violation of the game and bird laws of this State. And in no event shall the State ever be liable for the pay of any of the deputy commissioners herein provided for. All funds paid into the State Treasury from the sale of hunting licenses shall be set apart as a special fund as salaries and expenses of said Game, Fish and Oyster Commissioner and his various deputies, as provided for in this act. *Provided*, that the fund derived from the sale of hunting licenses contemplated by this act shall never be combined with the Fish and Oyster Fund of the State of Texas. Nor shall said Fish and Oyster Fund ever be liable for the payment of any of the expenses contemplated by this act, but shall be kept intact and for the sole purpose of paying the expenses of maintaining the fish and oyster business of Texas as now provided by law, and the said Commissioner and his deputies shall not be paid out of any other funds.

Bond of Chief Deputy: Sec. 7. The Chief Deputy Game, Fish and Oyster Commissioner shall, before assuming the duties of his office, file with the Secretary of State, a good and sufficient bond in the sum of $5,000 for the faithful performance of the duties of his office.

Report of licenses issued: Sec. 9. At the close of each calendar month the Game, Fish and Oyster Commissioner shall file with the Secretary of State a report giving in detail the work of his office, together with a correct list of the licenses issued during the preceding month, and shall remit to the State Treasurer for the entire amount of money received for same.

Laws of 1907, H. B. No. 345.

Separate offense; Common carrier; Examination of packages: Sec. 10. [Prohibits export of game;] *provided*, that each shipment shall constitute a separate offense, and that such express company, or other common carrier, or its agents, servants or employes shall have the privilege of examining any suspected package for the purpose of determining whether such package contains any of the articles mentioned herein.

Prima facie evidence: Sec. 15. Possession at any time of the year during which the game birds and wild fowls of the State are protected herein, shall be *prima facie* evidence of the guilt of the person in possession thereof.

UTAH.

Laws of 1907, chap. 118, p. 150.

State fish and game commissioner; Term; Qualifications; Vacancy: Sec. 1. That the Governor of the State, by and with the consent of the Senate, shall appoint a State Fish and Game Commissioner, hereafter called State Commissioner, who shall be a resident citizen of the State, and who shall not be a member of any hunting, shooting or fishing club, whose term of office shall be two years and until his successor is appointed and qualified; *Provided*, that when a vacancy occurs in the office of said State Commissioner and the Legislature is not in session, the Governor shall have power to fill such vacancy until the next regular session of the Legislature, and he shall have power to remove the State Commissioner at any time for cause.

Salary; Fund; Oath; Bond: Sec. 2. The State Commissioner shall receive an annual salary of one thousand two hundred dollars, together with his reasonable and necessary traveling and contingent expenses, not exceeding $300 per annum, to be paid out of the public treasury, in the same manner as other State Officers, *Provided*, that as soon as sufficient funds are accumulated in the State Fish and Game Fund in the State Treasury the salary of State Fish and Game Commissioner, and all chiefs or other game Wardens, shall be paid out of said fund. He shall before entering upon the duties of his office, take and subscribe to the constitutional oath of office and give a bond in the penal sum of five thousand dollars for the faithful performance of his duty. Such bond shall be approved by the State Board of Examiners and filed with the Secretary of State.

Powers and duties: Sec. 3. The State Commissioner shall have control and supervision of the waters of the State, for the collection, propagation, culture and distribution of fish in the State, and shall receive and distribute all game, fish, fish fry and spawn coming into his hands fairly and equitably among the several counties. He shall have full control of all the property of the State obtained or held for the purposes contemplated by this act.

Propagation, etc.; Report: Sec. 4. It shall be lawful for the State Fish and Game Commissioner or any person appointed by him in writing so to do, to take fish and game of any kind, dead or alive, or in any manner, under the direction of the County Fish and Game Warden, for the purpose of inspection, cultivation, propagation, distribution, scientific or other purposes, deemed by him to be in the interests of the fish and game industry of the State. He shall make a detailed report of his official transactions, including the number and kinds of fish distributed and the locality and name of streams, ponds or lakes where the same have been placed, and submit such report to the Legislature during the first week of its ensuing regular session.

Fish and game wardens; Bonds; Compensation: Sec. 5. After this act shall take effect, the State Fish and Game Commissioner shall appoint by, and with the approval of the County Commissioners one Chief State Fish and Game Warden in each county of this State who shall be a resident citizen of the county in which he resides.

He shall not be a member of any hunting, shooting or fishing club, whose term of office shall be two years and until his successor shall be appointed and qualified. The said Commissioners shall require of each Warden the giving of a bond in a sum not exceeding $1,000.00 for the faithful discharge of his duties and a prompt accounting for the payment of any moneys coming into his hands by virtue of his office. Such bonds shall run to the people of the State of Utah with surety to be approved by the Commissioners, *Provided* that the Governor by and with the consent of the State Fish and Game Commissioner shall fix the salary of the fish and game Wardens, and provided that no Warden shall receive a salary to exceed $600.00.

Duties of commissioner and wardens: Sec. 6. It shall be the duty of the State Commissioner, and also the duty of the Chief Fish and Game Warden to see that all laws of the State for the protection of fish and game are faithfully enforced in the several counties, and for this purpose they respectively are severally hereby given the same powers and authority granted by the laws of the State to and exercised by sheriffs and constables. The State Commissioner, each of his special deputies and every Chief Warden throughout the State, and every sheriff and constable in his respective county, is authorized and required to enforce this act, and seize any game or fish taken or held in violation of this act, and he shall have full power and authority, and it shall be the duty of every such officer, with or without a warrant, to arrest any person whom he has reason to believe guilty of a violation thereof; and if, without a warrant, to hold him until a warrant can be procured; to open, enter and examine all cars, stages, packs, warehouses, stores, outhouses, boxes, barrels and packages where he has reason to believe any game or fish taken or held in violation of this act, is to be found, and to seize the same; and, *provided*, that if such search or seizure be made without a warrant, the officer making the same must procure a warrant therefor as soon as possible during or after the search or seizure; and *provided* further, that a dwelling house actually occupied can be entered for examination only in the pursuance of a warrant. It shall be the duty of the Chief Game Wardens to report their official acts in detail to the State Commissioner annually during and not later than the first week in December, and oftener if so required by the State Commissioner.

Game protection fund: Sec. 14. [Hunting license fees to be paid into the State treasury to the credit of the fish and game fund.]

Seizure; Prima facie evidence: Sec. 25. Any person who shall have in his possession any game, fish or birds taken unlawfully is guilty of a misdemeanor. All fish or game taken or held unlawfully or shipped or consigned for shipment out of this State shall be seized by the State or any Fish and Game Warden and disposed of to the best interest of the State Fish and Game fund in which said seizure may be made. The possession of any animal, fish or bird, or of the remains or any part of the remains thereof, within the time or period within which the taking or killing or possession of the same is prohibited, shall be prima facie evidence of such unlawful taking or killing or possession, *provided* it shall be lawful at any time of the year to take any wild birds or the eggs of any wild birds mentioned in this act for scientific purposes under the supervision and authority of the State Fish and Game Commissioner; and it shall be unlawful to kill, catch or otherwise take or destroy, and leave to waste, or in any manner to cause or suffer to be wasted, any bird, animal or fish in this act mentioned, or any useful part or parts thereof.

Approved March 23, 1907.

VERMONT.

Laws of 1904, No. 118, p. 160.

Fish and game commissioner: Sec. 1. There shall be appointed by the governor, with the advice and consent of the senate, during the present session of the legislature, and biennially thereafter, a state fish and game commissioner, who shall hold office for two years from December 1st of the year of his appointment and until his successor is chosen and qualified. A vacancy occurring in such office shall be filled by the governor.

Salary; Expenses: Sec. 2. [As amended by Laws of 1906, No. 153.] The annual salary of the state fish and game commissioner shall be ten hundred dollars and his actual necessary expenses while away from home on official business. He shall also be allowed in the allowance of his accounts his necessary expenses for postage, stationery, blanks, printing, telephone, telegraph, freight and express. Said commissioner may employ a clerk at an expense not to exceed three hundred and sixty-five dollars per annum.

Propagation: Sec. 3. The state fish and game commissioner shall have the care and management of the state fish hatcheries and the propagation of fish and game in the state as is now and hereafter shall be provided by law, and shall enforce the laws relating to the protection of fish and game.

Record; Report: Sec. 4. He shall keep a correct account of the proceedings and business pertaining to his office, and shall submit to the legislature biennially a detailed report of which not exceeding two thousand copies shall be printed at the expense of the state.

Accounts: Sec. 5. He shall render to the state auditor an itemized account of all money expended by him in the care and management of the state fish hatcheries and in the protection of fish and game, and upon approval of the same, the state auditor shall draw an order upon the state treasurer for the amount thereof in favor of said commissioner. Such order, however, not to exceed in amount the sum appropriated under section 8 of this act.

County wardens: Sec. 6. [As amended by Laws of 1906, No. 152.] The state fish and game commissioner shall, annually, in the month of December, appoint at least one and not more than two, fish and game county wardens for each county, and as many deputy fish and game wardens in each county as he may deem necessary. Said wardens shall hold office for one year, or until their successors are appointed, and said commissioner may remove such wardens from office and fill vacancies which may occur.

Powers: Sec. 7. [As amended by Laws of 1906, No. 152.] Said wardens shall be under the direction and supervision of said commissioner, and shall act and incur expense only under his direction, and, when so acting, said wardens shall have the same powers as a constable while engaged in and with reference to their work as wardens.

Compensation; Reports; Expenses: [Added by Laws of 1906, No. 152, sec. 3.] Said county wardens shall receive two dollars a day and actual expenses while officially employed. Said deputy wardens shall receive one dollar and a half a day, and actual expenses, while officially employed. Said wardens shall report to said commissioner at such time and in such manner as he may direct. All accounts of said wardens for per diem and expenses shall be upon blanks to be furnished by said commissioner and such accounts shall be sworn to by said wardens and when approved by said commissioner the auditor of accounts shall draw orders therefor.

Appropriation: Sec. 8. [As amended by Laws of 1906, No. 153.] The sum of fifty-five hundred dollars is hereby appropriated annually for the care and maintenance of the state fish hatchery, and for the protection and preservation of fish and game. If any part of such appropriation remains unexpended at the end of any fiscal year, the unexpended portion shall be carried over and added to the fund for the following year, and so from year to year.

Prosecuting officers: Sec. 9. The state fish and game commissioner for the state, town grand jurors and state's attorneys shall prosecute for all vioiations of this act.

Game fund: Sec. 11. All money collected from fines imposed for violations of any law relating to fish and game shall be paid into the state treasurer [treasury] and used for the purpose of this act.

Approved December 7, 1904.

Vermont Statutes, 1894, chap. 96, p. 382.

Search: Sec. 1954. [As amended by Acts of 1896, No. 35.] A justice may grant a warrant for searching in the day time, a dwelling-house or other place, * * *; fish or game believed to have been taken contrary to law, or implements or devices for taking fish or game, subject to seizure or unlawfully possessed; where the discovery of such articles may tend to convict a person of offense.

Vermont Statutes, 1894, chap. 189, p. 821.

Arrest; Notice; Complaint or information: SEC. 4573. [As amended by Laws of 1906, No. 152.] County or deputy fish and game wardens may arrest on view, in any place in the state, a person found violating a provision of this chapter, and retain him in custody at the expense of the state, until opportunity is given to a complaining or informing officer to institute a prosecution against such offender; and a fish and game warden making such arrest shall immediately give notice to the grand juror of the town, or the state's attorney of the county in which the offense was committed, or if the offense was committed in an unorganized town or gore, to the grand juror of an adjoining town or the state's attorney of the county, and explain the nature and circumstances of the offense charged; and such complaining or informing officer shall forthwith file a complaint or information against such offender and prosecute the same.

Investigation; Report: SEC. 4574. If a fish and game warden has notice that there has been a violation in his town of any of the provisions of this chapter, he shall forthwith inquire into the same and he may investigate any violation of the provisions of this chapter in any place in the state; and if he finds that there has been a violation of any of the provisions of this chapter, he shall state the nature and circumstances of the offence to the grand juror of the town, or state's attorney of the county in which the offense is believed to have been committed, who shall prosecute the offender.

Presumptive evidence: SEC. 4623. [Prohibits possession for transportation of any game taken in close season] and possession of such fish or game by a railroad or express company, or other common carrier, within the close season for such fish or game, shall be presumptive evidence that it was taken in this state in violation of law.

Laws of 1896, No. 94, p. 74.

Presumptive evidence : SEC. 1. * * * and the possession of deer or any part thereof, except in the open season, shall be presumptive evidence that the person having it in his possession is guilty of a violation of the provisions of this section. * * * and having in possession any moose or caribou in this State, shall be presumptive evidence that the same was killed in the State contrary to law.

Dogs; Prima facie evidence : SEC. 8. [Added by Laws of 1898, No. 108, and amended by Laws of 1904, No. 130.] Dogs of the breed commonly used for hunting deer, moose or caribou, and dogs of other varieties that are known to follow deer, moose or caribou, shall not be permitted by the owner or keeper thereof to run at large in the forests inhabited by deer, moose or caribou; and if any such dog shall be found hunting, pursuing or killing any deer, moose or caribou, it shall be *prima facie* evidence that said dog was permitted to run at large in said forests and to hunt, pursue and kill deer, moose and caribou, * * *.

Laws of 1896, No. 95, p. 75.

Seizure: SEC. 1. [Prohibits netting or snaring of birds protected by close season,] and such game may be seized and shall be forfeited to the prosecutor.

Presumptive evidence: SEC. 2. [Prohibits hunting ducks with artificial lights;] and if a person is found on any public waters of this state, or the shores thereof, after sundown, with a firearm and torch, jack or artificial light, it shall be presumptive evidence that he is violating the provisions of this section.

Approved November 23, 1896.

Laws of 1896, No. 96, p. 76.

Prima facie evidence: SEC. 1. [Prohibits killing, sale or possession of game birds protected by a close season, except for consumption as food within the state;] and the delivery to or reception by any person or corporation within this State of any such game birds, for shipment to a point without the State, shall be *prima facie* evidence that the same were killed, and are possessed within the State for a purpose other than that of being consumed as food within the State.

Approved November 24, 1896.

Laws of 1904, No. 128, p. 167.

License; Game fund: Sec. 2. Such [nonresident deer hunting] license shall be issued by the fish and game commissioners of the state upon application in writing and the payment of fifteen dollars; and under such rules and regulations to be established by the fish and game commissioners as may be required to carry out the intent of this act. All money received for such licenses shall be forthwith paid to the state treasurer, and may be expended by the fish and game commissioners in the protection of fish and game.

Approved October 21, 1904.

Laws of 1906, No. 155.

License; Game fund: Sec. 1. [Requires nonresidents to procure a license to hunt ruffed grouse, woodcock, quail, ducks, English snipe, geese, and plover; fee $5; license to be issued by town clerk, who after deducting 25 cents as his compensation, is required to remit the balance to the fish and game commissioner.]

Approved December 18, 1906.

VIRGINIA.

Code of 1904, title 27, chap. 95, p. 1041.

Seizure; Disposition of seized property; Prima facie evidence: Sec. 2070a [As amended by Acts of 1906, chap. 237.] * * * All sneak boats, nets, traps or reflectors or other unlawful appliances so used [in killing any game] or found in the possession of any person shall be seized by any game warden or other officer and held by him as evidence, but the same shall not be destroyed except by the order of the court or justice having jurisdiction, upon warrants duly issued, which said court or justice shall, upon satisfactory evidence of the guilt of the party, or of the unlawful nature of the article seized, order the same to be destroyed. The possession of any of said guns, sneak boats, nets, traps, reflectors, or other unlawful appliances shall be prima facie evidence of the guilt of the person in whose possession they are found. * * * The possession of any of said game birds or game animals, or parts thereof, protected by the laws of this State, during the season in which it is unlawful to hunt, kill, chase, or capture the same, shall be prima facie evidence of the guilt of the party in whose possession they are found. * * *

City and county wardens: Sec. 2070b. It shall be the duty of the city or corporation court of the cities, or the judges thereof, in vacation, on the application of five resident freeholders of any city, to appoint two suitable persons in such city as game wardens, whose jurisdiction shall be confined to their respective cities, and where the board of supervisors of any county shall, by resolution of record in the minutes of said board, request the judge of the circuit court for said county so to do, the said judge shall, upon the application of five resident freeholders of any magisterial district in said county, appoint one suitable person in such magisterial district as game warden, whose jurisdiction shall be confined to said magisterial district; when the said appointment is made by the judge, in vacation, he shall certify the same to the clerk of his court, who shall enter the same in the order book of his court in the same manner as if made in term.

Term: (2) The said wardens shall hold office for the term of four years from the date of their appointment, unless sooner removed from office, and shall qualify according to law.

Powers; Duties; Arrest; Trial; Warrant: (3) It shall be the duty of said wardens to enforce all statutes of this State, and of the United States now in force, or hereafter to be enacted for the protection and propagation of wild water fowl, game birds, and game animals or song or insectivorous birds. The said wardens shall have power, and it shall be their duty, to arrest any person detected by them in the act of violating any of the aforesaid laws, or any person against whom a warrant shall have been duly issued, upon the information of any other person for such violation, and forthwith to carry such person before a justice or court having jurisdiction over the offense, who shall proceed, without unreasonable delay, to hear, try, and determine the charge against such person. No game warden shall have any right, under this act, to go upon the land of another person without the consent of such other person, until and unless such game warden shall have procured a search warrant in conformity with the provisions of subsection five of this section, or shall have a warrant for the arrest of some person thereon: provided, however, that such game warden may, without a warrant, arrest any person who violates any of the provisions of this chapter in the presence of such game warden, and should any person violate any of the provisions of this chapter in the presence of such game warden, such game warden may lawfully follow such person anywhere in the effort to arrest.

Oyster police; Reports; Fees: (4) The several commanders of the oyster police boats of this Commonwealth are hereby constituted game wardens of this State, whose jurisdiction as such wardens shall extend over the lands and waters of this Commonwealth within their several jurisdictions as commanders. They shall enforce the statutes of this State, and of the United States, for the protection of game or other animals or birds protected by law, and render report to the board of fisheries of all prosecutions, and the said board of fisheries shall publish the same in their annual report as information. The commanders of the said oyster police boats shall receive no additional compensation for the performance of these duties, except that in cases of conviction they may receive the fee provided for in subsection eight of this section.

Search: (5) Any court, judge, or justice having jurisdiction over the offense, if satisfied upon affidavit that there is reasonable cause to believe that any wild water fowl, game birds, game animals, or song or insectivorous birds, or parts thereof, caught, taken, killed, shipped, or about to be shipped, or in transit, contrary to the laws of this State, or of the United States, are being concealed or stored in any place, shall issue a search warrant and cause search therefor to be made in any such place, and to that end may, after demand and refusal, cause any building, enclosure, or car to be entered, and any apartment in which it is believed that game is concealed, to be examined by any of said wardens or other officers executing the warrant: provided, that the issuance and execution of such search warrants shall be in accordance with the issuance and execution of search warrants in other cases, as provided by law.

Seizure; Disposition of hunting appliances: (6) All game animals, wild water fowl, and birds protected by law, or parts thereof, found under such warrant, shall be seized by the warden or other officer making the search, and shall be disposed of as the court, judge, or justice having jurisdiction may direct. All guns, gunning, or hunting appliances found in such search shall be seized by said warden or other officer, and held subject to the payment of the fine prescribed by law for the offense charged, and the cost of prosecution. If any of the articles so found be such as are not authorized by law, they shall, upon the order of the court, judge, or justice having jurisdiction, be destroyed, and all other of such articles shall be sold at public auction, after the lapse of twenty days from the time of seizure, and after such notice as the court, judge, or justice having jurisdiction may prescribe, unless the reputed owner appears and acquits himself of the charge or pay the fine that may be imposed by the court, judge, or justice.

Resisting officers: (7) Any person or persons interfering with any of said game wardens in the discharge of their duty, or resisting lawful arrest, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than five dollars nor more than fifty dollars.

Disposition of penalties; Wardens' fees: (8) All fines and penalties imposed and collected under the provisions of this chapter shall be paid to the Commonwealth, and in addition to said fines and penalties there shall be assessed against the offender in every case of conviction, under the provisions of this chapter, a fee of two dollars and fifty cents, which shall be collected as fines are collected under the general provisions of law, and be paid to the warden who shall secure the conviction.

Neglect of duty: (9) If any warden appointed under this section shall refuse or wilfully neglect to prosecute any person violating any of its provisions, or any of the laws of this State relating to wild water fowl, game birds, or game animals, or song or insectivorous birds, his appointment shall be revoked by the court having jurisdiction, and such warden shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be fined not exceeding twenty dollars, and the vacancy thus created shall be filled by the court or judge, in vacation.

License fees; Payment of wardens; Reports; Restocking covers: (10) All money paid to or collected by clerks of courts as hunting licenses shall constitute a fund for the payment of the said regularly appointed game wardens of this State, as herein provided, and the clerk shall, after deducting a fee of fifty cents for issuing such license, on the first of April of each year, pay in equal amounts to the said warden or wardens of his county such sum as may be in his hands arising from the issuance of such licenses: provided, that no one warden shall receive more from this source than three hundred dollars in any one year, and shall make return to his court a detailed statement of such receipts and disbursements: provided, that in the counties of Accomac and Northampton the circuit court for said counties shall appoint, on the recommendation of the Eastern Shore Game Protective Association, the game wardens of the said counties, who shall make report at regular intervals to said association as its laws shall provide, and the said clerks of the courts of said counties, upon the order of said association, shall distribute among the game wardens for said counties, or as may have been agreed upon by contract between the said association and said wardens, or in proportion to the services which in their judgment have been rendered by them, respectively, the fund arising from the license of non-residents provided for in this chapter, or so much thereof as may be necessary. Should there be any surplus remaining after providing an efficient system of game protection in said counties from the license on non-residents above mentioned, said association may use it for restocking said counties with game. The clerk shall pay to the treasurer of said association such sums as may be thus extended, paying any amounts not needed for the purpose above mentioned to the auditor of public accounts, as provided in section twenty hundred and seventy "c."

Written permission; Informers; Forfeiture: Sec. 2072. If any person shoot, hunt, range, or fowl on the lands or in the water courses comprehended within the survey of any proprietor of lands in the counties of Alexandria, Fairfax, Prince William, Stafford, and King George, and within five miles of navigable tidewater, without license in writing from the owner or tenant of said lands, he shall, besides being liable to such owner or tenant in an action for damages, forfeit to the informer three dollars for the first offense, six dollars for the second offense, and nine dollars for each succeeding offense, the forfeiture in each case to be double if the offense be committed in the night or on Sunday; and he shall likewise forfeit to the informer in each instance his boat or other means of conveyance, his guns, dogs, and all his shooting and hunting apparatus used in the commission of the offense, and be liable for all costs and expenses incurred in apprehending and prosecuting him for the recovery of said forfeiture.

Seizure; Disposition of seized property; Imprisonment: Sec. 2073. Any person violating either of the two preceding sections may be arrested, and the property forfeited under the last section may be seized with or without warrant by any sheriff or constable, or any game warden of the Commonwealth within their respective jurisdictions, and held to await judgment. The offender shall be carried before a justice of the county in which the offense was committed, and a report be made to him of the property, if any, seized. The justice shall proceed to try the case and give judgment thereon. If judgment be rendered against the offender, it shall be for the forfeitures, pecuniary and otherwise, and the costs and expenses incurred, and any property seized,.adjudged to be forfeited, shall be delivered to the person entitled to the forfeiture in part satisfaction of the judgment. If the offender does not satisfy the judgment in full, the justice shall commit him to jail for one month, unless such satisfaction be sooner made. If the offender be acquitted, any property seized shall be released.

Recognizance: Sec. 2074. If a person be convicted a third time of any of the offenses mentioned in this chapter, the justice rendering judgment therefor shall require him to give a recognizance, with sufficient surety, for his good behavior for a year; and if he fail to give such surety, commit him to jail for one month, unless he sooner give it. Such recognizance shall be deemed to be forfeited if such person commit any of the said offenses within the time limited in the recognizance.

WASHINGTON.

Supplement to Ballinger's Codes and Statutes, 1899–1903, p. 599.

State warden: [Sec.] 7363a. There is hereby created the office of state game warden, and the state fish commissioner[a] shall be ex-officio such officer.

Powers; Duties; County wardens: The state game warden shall have full control and supervision over all county game wardens appointed in pursuance to any statute now existing on the statute books of this state, and may have the power to appoint said county game wardens special deputy fish commissioners for the county in which said county game wardens may reside and shall have general supervision over the enforcement and execution of all laws of this state for the protection of game animals, game birds, song birds and game fish, and shall have all the authority and powers as a peace officer conferred on county game wardens by any law of this state.

Report: The said state game warden in connection with his report as said fish commissioner, shall annually, on December first, report to the governor of this state a full account of his actions as said state game warden; also the operation and result of all laws pertaining to the protection of game animals, game birds and game fish. * * *

County wardens; Peace officers; Forest rangers; Search: [Sec.] 7364. It is hereby made the duty of every game warden so appointed, [by county commissioners] and every sheriff, deputy sheriff, constable, city marshal and police officer, within their respective jurisdictions in the state of Washington, to enforce all the provisions of this act, and all laws for the protection of game birds and animals, fish and song birds, and such sheriffs, deputy sheriffs, constables, city marshals, police officers, or any forest rangers appointed by the United States Government, and each of them, by virtue of their election and appointment, are hereby created and constituted ex-officio game wardens for their respective jurisdictions, and they and each of them, and each and every game warden so appointed, under the provisions of the preceding section, shall have authority, and it shall be their duty to inspect all depots, warehouses, cold storage rooms, storerooms, hotels, restaurants, markets and all packages or boxes, held either for storage or shipment, which they shall have reason to believe contain evidence of the infraction of any of the provisions of this act. And if, upon inquiry said officer discovers that sufficient evidence exists to justify the same, he shall at once institute proceedings to punish the alleged offenders.

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[a] Fish commissioner appointed by the governor for four years, under a bond of $5,000, at a salary of $2,000 per annum and allowed $1,000 per annum for traveling expenses. May apply to the attorney general for his opinion upon any law affecting his official duties.

Arrest; Trial; Prosecuting officer: [Sec.] 7366. Any game warden appointed under the provisions of this act, any sheriff, deputy sheriff, city marshal, constable or police officer, forest ranger, may, without warrant, arrest any person by him found violating any of the provisions of this act, or any other act or acts hereafter enacted and enforced, at any time for the protection of game, fish and song birds, and take such person or persons before a justice of the peace or municipal judge having jurisdiction, who shall proceed without delay to hear, try and determine the matter, and give and enter judgment according to the allegations and proof. All such actions shall be brought in the name of the state of Washington and shall be prosecuted by the prosecuting attorney of the respective counties.

Presumptive evidence: [Sec.] 7371. * * * Possession of any of the animals or game birds mentioned or named herein, [deer, moose, caribou, antelope, mountain sheep, mountain goat, quail, Chinese or Mongolian pheasant, grouse, native pheasant, ptarmigan, partridge, prairie chicken, sage hen, wild duck, goose, swan, brant, sandhill crane, snipe, rail, and plover] or any of the meat of the same, except the number of ducks, geese, brant or snipe permitted to be taken during the month of November of any year, shall be presumptive evidence that said animals, birds, or the meat of the same was unlawfully taken by the person having possession of the same, and upon conviction thereof shall be punished as hereinafter provided; * * *

Game protection fund; Satisfaction of judgment: [Sec.] —. All moneys received and all fines collected under this act shall be paid to the treasurer of the county in which the suit, action or proceeding shall have been commenced and placed by him in the game protection fund to be used for the protection or propagation of game in said county, and the prosecuting attorney, justice of the peace or judge of any county, upon the payment of any fine or judgment, may satisfy the same of record for the state. * * *

Laws of 1905, chap. 172, p. 349.

Chief deputy; Compensation; Certificate; Duties: Sec. 1. The state game warden shall appoint one chief deputy state game warden, who shall hold his office during the pleasure of the state game warden, and shall receive a salary of fifteen hundred dollars ($1500) per year, to be paid in monthly installments, by the state treasurer on warrant drawn by the state auditor, and shall be allowed his actual expenses of travel in the performance of his duty, not to exceed the sum of seven hundred and fifty dollars ($750) in any one year; and no payment of salary or traveling expenses shall be made by the state auditor to said deputy state game warden, except upon certificate of the state game warden, that the vouchers of the deputy state game warden are correct, that the services have been faithfully rendered and the money for traveling expenses actually expended. The duties of the chief deputy game warden shall be to enforce all the provisions of law in reference to the protection of game and to prosecute all violations of law in reference thereto, to direct and supervise all acts of county and special deputy game wardens, and to use all lawful ways and means to protect game and to encourage and secure the propagation thereof.

County wardens; Salary: Sec. 2. The county commissioners of the respective counties of the State of Washington are hereby empowered and authorized to and shall, upon application in writing of one hundred resident freeholders and taxpayers of said county, appoint a suitable person, who shall be a resident and qualified elector of said county, as game warden of such county, who shall be vested with all the authority of a sheriff to perform the duties prescribed by the laws of the State of Washington for the protection of game animals, game birds, song birds and game fish. Such game warden, so appointed, shall receive a salary of not less than twenty-five dollars ($25) nor more than one hundred dollars ($100) per month to be paid monthly out of the game protection fund of such county.

Powers; Special wardens; Oath; Responsibility: SEC. 3. All county game wardens shall be *ex-officio* deputy state game wardens, and shall have the same powers in the enforcement of the game laws of the State as the chief deputy state game warden, and shall be under the direction and supervision of the chief deputy state game warden. County game wardens shall have power to appoint special game wardens for his county, such special game warden shall receive no salary but shall have same authority as other game wardens; county game wardens before entering upon their duties shall take and file with the county auditor of his county the oath of office as prescribed for other county officers, and shall be held responsible for neglect, or non-performance of his duties, and the county commissioners of any county may remove the county game warden at any time for neglect or non-performance of duty.

Approved March 13, 1905.

Laws of 1905, chap. 147, p. 277.

License fees; Fines; Game fund: SEC. 1. [Establishes resident and nonresident licenses.] * * * The county auditor shall pay to the county treasurer all such fees collected by him, to be placed in the game protection fund, to be used by the county commissioners for the propagation and protection of game in said county, and the state auditor shall pay to the state treasurer all such fees collected by him to be placed in the game protection and propagation fund. All fines collected under the provisions of this act shall be paid to the county treasurer of the county in which said fines are collected, and placed by him in the game protection fund.

State fund: SEC. 2. There is hereby created a State fund, which shall be used only for the protection and propagation of game animals, game birds and game fish in this State.

Approved March 7, 1905.

WEST VIRGINIA.

Code of 1906, chap. 62, p. 1122.

Game and fish warden; Salary; Mileage; Deputies; Compensation: SEC. 2794. That it shall be the duty of the governor to appoint some person, a resident of this State, to the office of game and fish warden. Said warden shall hold his office for four years or until his successor has been appointed and qualified, unless removed for cause by the governor. He shall receive for his services the sum of one thousand ($1,000.00) dollars a year, to be paid out of the treasury, quarterly, after being duly audited; and shall be allowed mileage of three cents a mile while traveling by railroad or steamboat, and ten cents a mile while traveling otherwise than by railroad or steamboat, for the distance necessarily traveled for the purpose of enforcing this act: provided, always, that the mileage expenses of said warden shall be reported quarterly under oath, to the governor, and approved by him, and he also shall have the power to fix and limit from time to time the amounts to be so expended. Said game and fish warden shall select such person or persons as he may deem fit, including any sheriff, deputy sheriff or assessor, to act as deputy game and fish warden in the several counties of the State, and if approved by the governor, he shall appoint them deputy game and fish wardens. The deputy game and fish wardens shall receive for their services the fines[a] accruing from such prosecutions as may be instituted by them respectively, but no money shall be paid to them out of the treasury of the State. They shall hold their offices at the pleasure of the game and fish warden.

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[a] The constitutionality of this provision has been questioned in a case now before the supreme court of the State.

Duties: Sec. 2795. It shall be the duty of the game and fish warden and of his said deputies * * * to enforce the statutes of this State for the preservation of fish and game, and to enforce all other laws of this State for the protection and propagation of birds, game and fish, now in force or hereafter enacted, and to bring or cause to be brought, and to prosecute or cause to be prosecuted, actions and proceedings in the name of this State to punish any parties for the violation of said statutes and laws.

Powers; Search; Prima facie evidence; Seizure: Sec. 2796. Said warden and deputies may make complaint and cause proceedings to be commenced against any person or persons for the violation of game and fish laws without the sanction of the prosecuting attorney of the county in which such proceedings are commenced, and in such cases they shall not be obliged to furnish security for costs. Said warden and deputies may also appear in any court of competent jurisdiction in this State in any case for violation of any of the laws for the protection or propagation of fish or game, and prosecute the same in the same manner and with the same authority as the prosecuting attorney of the county in which such proceedings are commenced. And in such case, he may, in the event of the refusal or neglect of the prosecuting attorney to act, employ an attorney of his choice, and to such attorney, or to the prosecuting attorney, if he shall act, there shall be taxed in the costs upon conviction a fee of ten dollars in each case. Said warden and deputies shall have power to search any person and examine any boat, conveyance, railroad car, vehicle, fish-box, fish-basket, game-bag or game-coat, or any other receptacle for game or fish, when they have good reason to believe that they will thereby secure evidence of the violation of the laws; and any hindrance or interference, or attempt at hindrance or interference with such search and examination, shall be prima facie evidence of a violation of the law by the party or parties who hinder or interfere with, or attempt to hinder or interfere with such search and examination. Said game and fish warden and deputies shall at any time and at all times seize and take possession of any and all birds, animals or fish, which have been caught, taken or killed at a time, in a manner, or for a purpose, or had in possession or under control, or have been shipped, contrary to any of the laws of this State. Such seizure may be made without a warrant. Any court having jurisdiction of the offense, upon receiving proof of probable cause for believing in the concealment of any bird, animal or fish caught, taken, killed, had in possession, under control, or shipped contrary to any of the laws of this State, shall issue a search warrant, and cause a search to be made in any place, and to that end may cause any building, enclosure or car to be entered, and any apartment, chest, bar locker, crate, basket or package to be broken open and the contents thereof examined by said game or [and] fish warden. All birds, animals or fish, or nets or fishing appliances or apparatus, seized by the said game and fish warden or any of his deputies, or other officer or officers, shall be disposed of in such a manner as may be directed by the court before whom the offense is tried, or by any court of competent jurisdiction, and the proceeds of any sales, after deducting all legal costs, shall be paid into the treasury of the State.

Process; Arrest; Sunday: Sec. 2797. Said game and fish warden and his deputies shall have the same power to serve criminal process as sheriffs, and shall have the same right as sheriffs to require aid in executing such process. Said warden and deputies may arrest without warrant, any person caught by him or them in the act of violating any of the aforesaid laws for the protection or propagation of birds, game or fish, and take such person forthwith before a justice of the peace, or other magistrate having jurisdiction. Such arrest may be made on Sunday, in which case the person arrested shall be taken before a justice of the peace, or magistrate having jurisdiction, and proceeded against as soon as may be, on a week day following the arrest.

Reports of deputies: Sec. 2798. Every deputy warden shall at the close of each calendar month report in writing and in detail to the game and fish warden the service performed by him during the last preceding month, including an account of the suits commenced at his instance, and the amount of money received by him for fines imposed for a violation of the provisions of this chapter.

Report of warden: Sec. 2799. Said game and fish warden shall, in the month of December of each year, file in the office of the secretary of state a report in writing stating in detail an account of the suits instituted by him and his deputies, the amount of fines imposed for violation of said provisions, and the amount of fines collected. The secretary of state shall cause said reports, or so much thereof as may be of interest to the public, to be transmitted bi-ennially to the legislature when in session.

Resisting officers: Sec. 2800. Any person who hinders, obstructs or interferes with, or attempts to hinder, obstruct or interfere with said game and fish warden, or any of his deputies, in the discharge of any of their duties, shall be deemed guilty of a misdemeanor, * * *

Jurisdiction; Prima facie evidence: Sec. 2759. [Protects deer, wild turkeys, quail, etc.] Any justice of the peace of the county, wherein the offense was committed, shall have concurrent jurisdiction of all offenses under this chapter with the circuit court of the county. Any person found with any recently killed venison or fresh deer skins, wild turkey, quail, pheasant or ruffed grouse, in his possession during the time when the killing of deer, wild turkey, or quail, pheasant or ruffed grouse is prohibited by this chapter, shall be presumed to have killed the same; and the reception by any person within this State of any deer, wild turkey, quail, pheasant or ruffed grouse for shipment to a point without the State shall be prima facie evidence that the said deer, wild turkey, pheasant, or ruffed grouse, were killed within this State, for the purpose of carrying the same beyond its limits.

Clerks; Market masters; Peace officers; Duties; Liability: Sec. 2785. [Prescribes close seasons for game birds, limits bag, and prohibits trapping and use of swivel guns and other devices.] And it is made the duty of the clerk or market master of any city, town or village, within this State, to diligently watch and arrest all persons violating the provisions of this act by having any game or fish, mentioned therein, unlawfully in their possession or vending the same during any of the periods prohibited by this act. And it shall be the duty of the sheriff and his deputies in each county of the State, the chief of police and his deputies in each town or city within the State, and constables of the counties, to inform against and prosecute all persons who, there is probable cause to believe, are guilty of violating any of the provisions of this act. And if any of the aforesaid officers, who shall have been reliably informed that any part of this act has been violated, fail to prosecute the offender they shall be guilty of a misdemeanor, and fined a sum not exceeding twenty dollars.

Prima facie evidence: Sec. 2789. [Prohibits possession and sale of game birds in close season,] and the possession of such birds or game, shall be prima facie evidence that the same were killed or caught by such person or persons, having possession of the same, unlawfully within the State of West Virginia. * * *

Prosecutions; Attorney's fee; Witnesses; Exemptions: Sec. 2791. All prosecutions under this chapter shall be in the name of the State of West Virginia, before any court, justice of the peace, mayor, or other officer having jurisdiction, and in any case in which the prosecuting attorney of the county appears, a fee of ten dollars shall be allowed to him to be taxed as part of the costs. And every person called as a witness to any violation of any of the provisions of this act shall be compelled to testify fully, but his testimony shall not be given in evidence against him, in any prosecution for such offense; and no person against whom such witness shall so testify, shall be competent as a witness for the State in the prosecution against such witness for the same offense or matter as to which said witness so testified, or for any like offense committed by such witness, before the commencement of the prosecution in which he is examined as such witness.

License fees; Production of license: Sec. 2792. Said license fee [nonresident] to be turned into the treasury of the State. Every person claiming to hold a hunter's license shall produce the same for inspection whenever required by the prosecuting attorney, sheriff, justices of the peace, assessors or constables of the county, or game and fish warden, deputy warden, or owner of the land on which such licensee should then be hunting, and if he fail or refuse, to do so, shall be guilty of a misdemeanor,

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WISCONSIN.

Sanborn & Berrymans Annotated Statutes, 1898, chap. 62, p. 1108.

State warden; Duties; Salary; Expenses: Sec. 1498. [As amended by Laws of 1903, chap. 410.] The Governor shall appoint a state fish and game warden who shall hold his office for the term of two years from the date of his appointment and until his successor is elected and qualified, unless sooner removed; and any vacancy occurring during said term shall be filled by the Governor for the residue of the term. It shall be the duty of said warden to secure the enforcement of the law for the preservation of fish and game and to bring or cause to be brought actions and proceedings in the name of the state to recover any and all fines and penalties provided for. [He is also required to perform the duties of fire warden.] Such warden shall devote all his time to the duties of his office and shall receive a salary of eighteen hundred dollars per year and his actual expenses and disbursements to be paid upon vouchers therefor approved by the Governor, to be paid out of the fund known as the hunting license fund.

Special deputies: Sec. 1498a. [As amended by Laws of 1901, chap. 358.] The said warden may appoint, by and with the approval of the Governor, two special deputy wardens for each congressional district. He may also appoint as many additional special deputy wardens as may be necessary to carry out the provisions of this act.

County wardens; Compensation: Sec. 1498b. [As amended by Laws of 1899, chap. 312.] Whenever the county board of any county shall by resolution authorize the appointment of county wardens, and shall fix the number of the same it shall be the duty of the county judge, district attorney and county clerk, acting as a board of appointment, to select the persons for such positions and certify their names to the state fish and game warden, who shall, if in his judgment such persons will make competent and efficient deputy wardens, issue commissions as deputy wardens to such persons so designated. The compensation of each of said deputy wardens so appointed for such county shall be fixed by the board appointing the same, and be paid out of the county treasury the same as salaries of other county officers.

Process; Arrest; Seizure; Disposition of seized property: Sec. 1498c. The warden and his deputies shall each have full authority to execute and serve all warrants and processes issued by any justice of the peace or police magistrates or by any court having jurisdiction under any law relating to fish and game, in the same manner as any constable may serve and execute such process, and arrest without warrant any person by him detected in actually violating any of the provisions of the law relating to fish and game, and may take such person so offending before any court and make proper complaint. It shall further be the duty of such warden and his deputies, upon receiving information that any law relative to fish and game has been violated, to immediately cause a thorough investigation to be made and proceedings to be instituted if the proof at hand warrants. Such warden and his deputies may seize and forthwith destroy any and all apparatus designated by any law relating to fish and game to be a public nuisance. It shall be their duty to seize and confiscate in the name of the state any fish or game caught, killed or taken in violation of any law or had in possession contrary thereto, to sell the same at public auction and pay the proceeds to the state treasurer, less the expenses of such seizure and sale. It shall also be their duty to seize and hold subject to the order of the court all apparatus, appliances or devises which either of them shall have reason to believe is being used in the violation of the fish and game law, and which is not designated by law as a public nuisance, and if it be proven that the same is or has been, within six months previous to such seizure, used in violation of law the court before which the said apparatus, appliance or device is taken may order the destruction or sale of the same to the highest bidder, after having declared it confiscated to the state. If sold to the highest bidder the warden or deputy selling it shall remit to the state treasurer the amount received therefor, less the expense of seizure and sale.

Peace officers: SEC. 1498e. All sheriffs, deputy-sheriffs, coroners and police officers are ex officio deputy fish and game wardens, and it shall be the duty of each of them to assist the state warden or his deputies in the enforcement of the fish and game law upon notice being given to either of them that a violation of law has been brought to the attention of such warden or either of his deputies.

Attorney-general: SEC. 1498f. The attorney-general and his assistants shall advise the state warden concerning the discharge of his duties and assist him in the enforcement of the fish and game law, aid in the prosecution of cases arising under such law or in which said warden or any of his deputies shall be interested as such officers, and conduct the prosecution when for any reason said warden shall deem such prosecution necessary; assist him in the investigation of matters relative to the law protecting fish and game and the violations thereof in such manner and at such times as shall be necessary.

District attorney: SEC. 1498g. It shall be the duty of every district attorney to prosecute actions for violations of the law relating to fish and game, when complaint is made by the state fish and game warden or any deputy, if his presence at the trial of such offender against such laws shall be deemed necessary by the magistrate before whom the same shall be brought.

Disposition of fines; Game fund: SEC. 1498h. [As amended by Laws of 1899, chap. 312.] The fines collected under the laws regulating the taking, possession, killing or transportation of fish and game, including the violations of the acts relative to the granting and holding of licenses to hunt certain game, shall be paid by the magistrate to the county treasurer, and one-third of said amounts so received as fines shall be by said treasurer designated and set apart as a fund for the protection of fish and game and to reimburse the county for the moneys which it shall expend for the enforcement of the fish and game laws.

Nonliability: SEC. 1498j. In the performance of his duties as warden or deputy warden each of them shall be exempt from any and all liability to any person for acts done or permitted or property destroyed under and by virtue of the authority of law.

Public nuisance; Seizure; Sale of seized game: SEC. 1498k. It shall be the duty of the warden, each of his deputies and of every sheriff, deputy-sheriff, constable or other peace officer to destroy forthwith any article or thing declared by law to be a public nuisance when found or taken in the unlawful use which, according to law, makes the same a public nuisance; and no liability shall be incurred to the owner or any other person for such destruction. Said warden and each of his deputies may seize and take possession of, in the name of the state, any fish, venison, birds, fowl or game caught, taken or killed or had in possession contrary to the provisions of law relative to fish and game; and such fish, venison, birds, fowl or game caught, taken or killed or had in possession contrary to the provisions of law are hereby declared to be contraband and shall be sold [a] by the warden or his deputy to the highest bidder; and any person purchasing the same shall have the right to use, or dispose of the same in the same manner as though the said fish, venison, birds fowl or game had been caught, taken, killed or were had in possession in accordance with the provisions of law, anything to the contrary notwithstanding; * * *. The right to have in possession and dispose of such fish or game so seized and sold shall expire five days after the date of the sale, and the protection to the purchaser given by this section shall then cease. [Last sentence added by Laws of 1899, chap. 312.]

Report: Sec. 1498l. [As amended by Laws of 1899, chap. 312.] On or before the thirty-first day of December in each year the state fish and game warden shall report to the governor the transactions of his department, including the work of himself and deputies and such other information as may be valuable to the state concerning the enforcement of the fish and game laws during the year preceding.

Public nuisances; Destruction: Sec. 1498o. [As amended by Laws of 1899, chap. 312.] The following are declared to be public nuisances:

* * * * * * *

4. Any nets spread upon or under the surface of any of the waters of the state which shall or might entrap or ensnare any wild fowl of any kind.

5. Any trap, snares, spring gun, set guns or other device or contrivance which might entrap, ensnare or kill any animals, birds or water-fowl protected by law.

6. Any boats, lamps or lights when used in the unlawful taking or attempting to take fish or game.

7. Any pivot or swivel gun or other firearm, not habitually held at arm's length and discharged from the shoulder, while the same shall be in unlawful use.

* * * * * * *

9. Any boat, floating raft, box or blind set in open water or outside a natural growth of grasses or rushes sufficiently high to conceal the boat, raft or blind, or an artificial blind set in open water for the unlawful pursuit, hunting or shooting of any wild duck, goose or brant.

10. All decoys set in any of the waters of the state, during the close season for the hunting of any variety of water-fowl as prescribed by law, and any decoys set in the water more than two hundred feet from the cover, which said cover shall be construed to mean the weeds, rushes or other vegetation in which the hunter may locate, or any place in which the hunter shall wholly or partially conceal himself.

11. The unlawful use of any of the articles mentioned in this section, contrary to the provisions of law, shall forfeit the same to the state, and upon their being found under any of the conditions which shall render them public nuisances as specified herein they may be immediately destroyed.

Examination of license records: Sec. 1498t. [As amended by Laws of 1899, chap. 312.] The state fish and game warden, or either of his deputies may, at any time examine the records of licenses issued by county clerks.

Annotated Statutes, 1898, chap. 185, p. 2753.

Decoys; Hunting license fund: Sec. 4563b. [As amended by Laws of 1903, chap. 437, prohibiting use of more than 25 decoys in hunting aquatic fowl.] All decoys used in violation of the provisions of this section are hereby declared to be contraband, and may be seized and sold to the highest bidder under the direction of the game warden, and the net proceeds of the sale to go into the hunting license fund.

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[a] See Act of 1907.

Confiscation of guns, &c.: Sec. 4565c. [As amended by Laws of 1905, chap. 514. Establishes close seasons for rabbits, squirrels, and fur-bearing animals.] All guns, traps, boats or other implements used in violating any provisions of this section, and all game taken in violation thereof may be seized, confiscated and sold by any warden as provided by law. * * *

Laws of 1899, chap. 312, p. 562.

Deputies' reports; Statistics: Sec. 3. [As amended by Laws of 1901, chap. 408.] All deputy wardens, whether special or county shall make it [to] the state fish and game warden full and complete reports of their transactions as such, according to the demand of the state fish and game warden and shall at all times be held subject to his discretion and control in the performance of their duties. They shall also gather and transmit to the state fish and game warden any and all statistical information relative to fish and game as said fish and game warden shall from time to time call for. * * *

Special deputies' compensation and expenses: Sec. 4. [As amended by Laws of 1901, chap. 358.] The two special deputy wardens appointed for each congressional district, and the additional special deputy wardens who may be appointed shall each receive a per diem to be fixed by the state warden, by and with the approval of the governor, which per diem shall include pay for such days as each such deputy shall be under the direct order of the state warden to perform services in the enforcement of the fish and game laws, and upon certificate of said warden that such services have been actually rendered at his instance and under his direction. In addition to the per diem provided for, such deputies shall receive their actual necessary expenses incurred while working under the direction of the state warden, which expenses shall be paid upon vouchers therefor approved by the governor and countersigned by said state fish and game warden.

Confiscation of unmarked packages: Sec. 19. [As amended by Laws of 1901, chap. 358. Requires all packages containing game to be marked so as to disclose the number of each variety of birds or animals.] Any shipment made or had in possession in violation of this law may be seized, confiscated and sold by any warden as provided by law.

Confiscation of improperly addressed packages: Sec. 20. [As amended by Laws of 1901, chap. 358. Requires consignors of game to place name and address of shipper and name and address of consignee upon every package delivered to a common carrier.] Any shipment made or had in possession in violation of this law may be seized, confiscated and sold by any warden as provided by law.

Examination of packages: Sec. 22. It shall be within the power of every officer charged with the enforcement of laws protecting fish and game to examine and open any package in the possession of a transportation company, which said package he shall suspect or have reason to believe contains contraband fish or game. It is hereby made the duty of every common carrier, agent, servant or employe thereof, to permit any officer charged with the enforcement of laws for the protection of fish and game to examine and open any package or parcel in the possession of said common carrier, or agent, servant or employe thereof, which the said officer so charged with the enforcement of said laws shall suspect or have reason to believe contains fish or game protected by the laws of the state, and not entitled under such law to be transported, or when the said officer shall suspect or have reason to believe that the said package or parcel is falsely labeled. Any person, firm or corporation refusing to an officer charged with the enforcement of the fish and game laws permission to examine or open any such package or parcel or shall in any manner hinder or impede such action by the said officer, shall forfeit to the state of Wisconsin a sum not less than fifty dollars nor more than one hundred and fifty dollars, in the discretion of the court.

Officer of another State; Laws: Sec. 24. Any officer of any other state who is by the laws of said state authorized or directed to enforce the fish and game laws of said state is hereby designated and declared an agent of said state within this state. And it shall be lawful for said officer to follow any fish or game unlawfully shipped or taken from his state into this state and seize the same, and convey the same back to his own state, and so far as concerns said fish or game so shipped or brought from said state into this state, the laws of the state from which the same was brought into this state shall be declared to be and are hereby constituted the laws of this state concern [ing] such fish or game. And transportation companies are hereby authorized to deliver to such officer of another state, upon submission of proper proof of his official capacity, any fish or game so demanded or seized by him, and he, the said officer, is hereby authorized to take with him such fish or game to his own state. Or the said agent may dispose of said fish or game within this state, in accordance with the laws of the state from which the same was shipped, such disposition to be made under the supervision of an officer of this state authorized and directed to enforce fish and game laws, and the expenses of such officer for his assistance shall be made a lien upon such fish or game, or the proceeds thereof.

Cold storage warehouse: Sec. 25. [Prohibits possession of game out of season] and it is hereby made the duty of any owner or occupant of any cold-storage warehouse or building used for the storage or retention of fish or game to permit the entry and examination of the premises by any officer authorized to enforce fish and game laws. And the said owner, occupant, or agent, or servant, or employe thereof, shall deliver to said officer or agent any fish or game in his possession during the close season therefor, whether the same shall have been taken within or without this state, and whether the same shall have been taken lawfully or unlawfully. Any person who shall have in his possession or under his control any fish or game protected by the laws of this state, or who shall refuse to permit any officer charged with the enforcement of fish and game laws, entry into any cold-storage warehouse, and possession of any fish or game therein contained, during the close season for such fish or game, shall be punished by a fine of not less than fifty dollars, nor more than one hundred and fifty dollars, or by imprisonment in the county jail not less than sixty days nor more than four months, or by both such fine and imprisonment.

Officers of other States: Sec. 27. The state game warden of every other state, and his deputies and all other officers charged with the enforcement of fish and game laws are hereby designated the agents of this state for the taking possession of, seizing, holding and disposing of any fish and game protected by the laws of this state.

Seizure of game illegally transported: Sec. 28. It shall be unlawful and is prohibited for any person, firm or corporation or common carrier to ship into, or through this state from any other state any fish or game prohibited by the laws of said state to be shipped or transported and it shall be the duty of the state fish and game warden of this state or his deputy, to seize, hold, and dispose of, according to the laws of this state, any fish or game brought into or shipped into this state, or carried through, or attempted to be carried through this state, prohibited to be so shipped or transported by the laws of any other state, and further to dispose of the same according to the laws of this state. * * *

License fund: Sec. 29. All such [hunting] license money so received shall be set aside by the state treasurer and shall constitute a fund for the payment of the special deputy game wardens. The liability of the state for per diem salaries and expenses of deputy game wardens appointed under this act or otherwise and for all other services and expenses incurred, for any purpose under or in consequence of this act shall be limited to the license fees paid in pursuance of this act, and in no event shall the state pay any such salaries or expenses or be liable in any manner therefor, except to the extent of such license fees received by it under this act, any contract, express or implied, of the game warden to the contrary notwithstanding. And said game warden shall not issue any voucher, nor shall the governor approve any voucher, if issued by said warden, under the provisions of this act or otherwise for any such per diem, salary, services or other expenses of any kind unless the money to pay such voucher received for licenses issued under this act, shall at the time be on hand to pay the same.

Approved May 2, 1899.

Laws of 1901, chap. 358, p. 507.

License fund: Sec. 6. All moneys sent to the state treasurer in payment of hunting and fishing licenses and all moneys sent to the state treasurer by any game warden as the proceeds of any sale of confiscated fish or game[a] shall be set aside as a fund to be known as a hunting license fund.

Confiscation of deer without coupon: Sec. 28. [Requires residents and nonresidents who kill deer to attach one of their license coupons to the carcass.] Any carcass or part of a carcass of any deer had in possession in or near any hunting camp or found in transit or in any place for sale or storage, without the section of the hunting license coupon mentioned attached, may be seized, confiscated and sold by any warden as provided by law. * * *

Approved May 13, 1901.

Laws of 1903, chap. 437, p. 712.

Boat, etc., illegally used: Sec. 14. Any boat together with its machinery, sails, tackle, and equipment, and any gun used in violation of any of the fish and game laws of this state, is hereby declared to be contraband and may be seized, confiscated and sold by any game warden, to the highest bidder, and the net proceeds of sale paid into the state treasury and credited to the hunting license fund.

Dogs: Sec. 24. * * * Any dog found running deer in this state is hereby declared a public nuisance.

Confiscation of hides, etc.: Sec. 25. [Amending sec. 14, chap. 311, Laws of 1899. Prohibits sale and transportation of green hides, heads and carcasses, or parts of deer between Dec. 3 and Nov. 12, and permits shipment into the state of dry hides for manufacturing purposes, from other states at any time.] Any shipment made and had in possesion in violation of this section may be seized, confiscated and sold by any warden as provided by law. * * *

Approved May 22, 1903.

Laws of 1905, chap. 404, p. 656.

Special deputies; Commissions: Sec. 1. All special deputy fish and game wardens shall, before exercising any of the power and authority of a warden, be provided with a commission issued by the State fish and game warden under the seal of his department and approved by the governor. Such commission shall contain the date on which the term for which said special deputy fish and game warden is appointed, shall expire, and shall be substantially as follows:

State of Wisconsin.

Department for the Protection of Fish and Game.

To all to whom these presents shall come, greeting:

Know ye that reposing special trust and confidence in the integrity and ability of ——— ———, of the county of ———, I do hereby, with the consent and approval of the governor, appoint and constitute him a special deputy fish and game warden for the state of Wisconsin, and do authorize and empower him to execute and fulfill the duties of that office according to law until ——— —, 190—, unless this commission is sooner revoked.

In testimony whereof, I have hereunto set my hand and affixed the seal of my office at Madison, Wisconsin, this ——— day of ———.

Approved.

——— ———.
State Fish and Game Warden.

——— ———,
Governor.

Identification card: Sec. 2. The game warden department shall furnish each and every special deputy fish and game warden at the time of his appointment a pocket identification card or folder in form and substance as follows: A leather covered folder, size when folded three by four inches, on one of the inner sides thereof shall be securely fastened a photograph of such appointee to be furnished by him and partly on the photograph and partly of the margin of such folder shall be an impression of the seal of the game warden department; such appointee shall also affix his signature below the photograph on such folder. On the other inner side of such folder shall be securely fastened a miniature true copy of the commission issued to such appointee which shall be signed by the state fish and game warden. Such appointee when exercising the authority conferred upon him shall on demand of any person to whom he may represent himself as a deputy game warden, exhibit such identification card. When on official duty, such appointee shall at all times carry such identification card on his person.

Impersonating deputy: Sec. 3. Any person who shall falsely represent himself to be a special deputy fish and game warden or who shall assume to act as such without having been first duly appointed as herein provided, shall be punished by imprisonment in the county jail not more than six months or by a fine not to exceed one hundred dollars.

Laws of 1905, chap. 405, p. 658.

Ferrets: Sec. 2. * * * All ferrets used in violation of this act are hereby declared a public nuisance and may be seized and disposed of by the State fish and game warden in the manner provided by law.

Laws of 1907, chap. 287.

Sale of confiscated game: Sec. 1. There is added to the statutes a new section to read: Section 4560a—11. All protected birds, fowls or animals confiscated by any warden shall be sold at the highest market price, the proceeds thereof to be turned into the State treasury and credited to the hunting-license fund.

The State game warden or his deputies shall issue a certificate to the person purchasing, certifying that the same was legally obtained from said warden. The person so buying said game shall have three days in which to consume same, but no part thereof shall be re-sold by said person purchasing from said State or deputy game warden, provided that this shall not be construed to prevent any restaurant, club or hotel keeper from buying and serving said game to guests. Said game shall be tagged by the game warden selling same, and said tag shall show the date of sale and shall be returned to the said game warden within five days from the date of purchase.

WYOMING.

Revised Statutes, 1899, Div. 1, Title XV, p. 598.

State warden; Bond; Duties; Arrest; Peace officers; Attorney; Reports; Compensation; Expenses: Sec. 2101. [As amended by laws of 1903, chap. 44.] The Governor shall appoint a suitable person to serve as State Game Warden, whose duties it shall be to protect the game and fish of this State, and to enforce the laws relating thereto. The State Game Warden shall hold his office for four years and until his successor is appointed and qualified. Before entering upon the duties of his office the State Game Warden shall execute a bond to the State of Wyoming in the penal sum of ($3,000) three thousand dollars conditioned for the faithful performance of his duties, and his bond shall be approved by the Governor. The Governor shall have power, at any time, to remove the State Game Warden, for misconduct or neglect of his duties, upon written charges duly preferred; but the State Game Warden shall be heard in his own defence. He is hereby authorized to arrest, without warrant, any person or persons found violating any of the provisions of the game and fish laws when detected in the act or found with game or fish in their possession at the time of arrest. The State Game Warden shall be an active executive officer, and shall at all times when possible take the field in person, in the performance of his duties. He shall personally supervise the protection of all game, and the detection and punishment of violators of the game and fish laws. * * * Whenever the State Game Warden, or his legal assistants, meet with resistance, when attempting the arrest of any person or persons, for a violation of the game or fish laws, he, or his assistants shall have power and authority to call upon any peace officer or any citizen of Wyoming to assist in making such arrest. The State Game Warden is hereby authorized to employ an attorney to prosecute violators of the game and fish laws, when deemed necessary, such attorney to be paid from the State game fund. Provided, that not more than ($200) two hundred dollars per annum be expended in this manner. The State Game Warden shall be required to make an annual report to the Governor, and all Assistant Game Wardens be required to report monthly to said State Game Warden. The State Game Warden shall be paid the sum of ($1,500) fifteen hundred dollars per annum, payable monthly from the general fund of the State together with an allowance of ($200) two hundred dollars per annum for contingent expenses.

Assistant wardens; Compensation; Bond; Forest rangers: SEC. 2102. [As amended by Laws of 1903, chap. 44.] The State Game Warden shall have power to appoint such assistants as are necessary, in the various counties of the State, to properly enforce the laws and he is hereby authorized and directed to appoint three Assistant Game Wardens from different parts of the State, no two to be appointed from any one county, to be paid an annual salary of ($900) nine hundred dollars, each, payable quarterly out of the State Game Fund, and he is hereby authorized and directed to appoint one or more special Assistant Game Wardens as the emergency may demand, in any county of this State; said special Assistant Game Wardens to be paid the sum of three dollars per day during the time of actual service. All salaries to be paid from the State game fund after the accounts have been approved by the State Game Warden. The three Assistant State Game Wardens shall execute a bond to the State of Wyoming in the penal sum of ($1,000) one thousand dollars each, and all special Assistant Game Wardens shall execute a bond to the State of Wyoming in the penal sum of ($500) five hundred dollars each, conditioned for the faithful performance of their duties, said bond to be approved by and filed with the State Game Warden; and they shall have the same power to make arrest as the State Game Warden. Their commissions may be revoked, at any time for good and sufficient cause, by the State Game Warden. Provided that persons employed in this State by the Federal Government for the protection of the various forest reserves and known as "forest rangers" may be appointed special Assistant State Game Wardens without pay or bond, and at the pleasure of the State Game Warden. And it is hereby declared by the Legislature of the State of Wyoming, that the office of "forest rangers" under the Department of the Interior[a] of the United States shall not be incompatible with the office of special Assistant Game Warden, within the meaning of Section 19 of Article 6 of the Constitution of the State of Wyoming. The State Game Warden shall file with the Governor a list of all Assistant and Special Assistant Game Wardens appointed by him.

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[a] Now under the Department of Agriculture.

Appropriation; Neglect of duty: Sec. 2103. [As amended by Laws of 1905, chap. 69.] There is hereby appropriated out of the monies of this State, not otherwise appropriated, the sum of $2,000 (two thousand dollars), or so much thereof as may be necessary for the year 1905, to be credited to the State Game Fund as hereinafter provided for, whenever the attention of the State Game Warden or any Assistant State Game Warden, Sheriff, Deputy Sheriff or Constable, is called to any violation of any of the provisions of this title, and he shall fail to take proper steps for the arrest and conviction of any person or corporation charged with such violation, he shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than fifty nor more than two hundred dollars, and shall have his commission revoked.

Prima facie evidence: Sec. 2105. [As amended by Laws of 1907, chap. 102.] * * * if at any time any person shall be found in possession of any partridges, prairie hen, prairie chicken, grouse, or sage chicken, at any other time than between the dates above mentioned [close season] or any other fowls or birds mentioned in this section [snipe, greenshank, tatler, godwit, curlew, avocet, wader, plover, quail, lark, or 'other insectivorous birds,'] except in the open season therefor, it shall be prima facie evidence that the same was killed, netted, ensnared, or trapped by such person in violation of the provisions of law. * * *

Prima facie evidence: Sec. 2109. [As amended by Laws of 1907, chap. 102. Limits number of game animals that may be killed.] The possession of such carcass, carcasses, or part of carcass, skin, scalp, antlers, tusks or tusk, in excess of the number allowed by the provisions of this chapter shall be considered prima facie evidence of the violation of this section. * * *

Guides; Responsibility; Definition of guide: Sec. 2110. [As amended by Laws of 1907, chap. 102.] * * * Every person acting as guide in this State shall be ex-officio Assistant Game Warden and shall file with the State Game Warden his oath of office as such Assistant Game Warden. Any guide who shall fail or refuse to report any violations of the game or fish laws by the persons employing him, or by any other person known to or observed by him violating said laws shall be liable to the penalties prescribed in Section 2116 of this act, and any guide who shall fail or refuse to furnish a sworn report to the State Game Warden as hereinbefore provided, shall have his certificate revoked by the Justice of the Peace who granted the same whenever the said State Game Warden shall file with said Justice of the Peace an affidavit complaining that such guide failed or refused to report according to the provisions of this section; and any guide having his certificate so revoked shall be ineligible to act as guide in this State for a period of five years from the date of revocation of his certificate. The State Game Warden and his assistants are hereby authorized and directed to keep a list of all guides, whose certificates have been revoked and to file a copy of such list with the County Clerks of the various counties of this State for the information of the Justices of the Peace; and it shall be unlawful for any Justice of the Peace to issue a guide's certificate to any person whose certificate has been revoked as hereinbefore provided for, or to any person who may hereafter be convicted of any violation of the game or fish laws of this State. Every Guide who as ex-officio Assistant Game Warden makes an arrest and convicts any offender of any violation of the game or fish laws of this State shall be entitled to receive three dollars per day for each day actually employed in making the arrest and securing the conviction; to be paid from the State Game Fund, when the account has been approved by the State Game Warden. Any person who shall, for pay, aid or assist any person or party in locating, pursuing, hunting, and killing any of the game animals of this State, shall be deemed a guide within the meaning of this section.

Search of camps, etc.: Sec. 2112. [As amended by Laws of 1905, chap. 69.] * * * That the State Game Warden and his assistants and all Sheriffs and Constables of this State shall have the right to search any camp, camp outfit, pack or pack animals for carcasses, hides, scalps, or tusks, or other parts of animals killed in violation of the provisions of this chapter.

Production of license; Separate offense; Jurisdiction: Sec. 2113. [As amended by Laws of 1903, chap. 44.] It shall be the duty of all persons holding licenses [hunting] as herein provided for, to produce the same when demanded by any duly authorized officer of the law. Each act of pursuing, killing or hunting of any of the animals mentioned in this chapter, without a license, shall be considered a distinct and separate offense. The several district courts of this State shall have original jurisdiction, as well as Justices of the Peace, of any violation of the provisions of sections 2107 to 2115 inclusive.

Disposition of license fees: Sec. 2114. [As amended by Laws of 1907, chap. 102.] All moneys, collected for licenses and for certificates to guides, as herein provided, shall within thirty days after the receipt of the same by any Justice of the Peace, be paid into the State Treasury. Every Justice of the Peace shall also furnish the State Treasury, with each remittance, a list of the names of all persons who have secured from him licenses and guide certificates and the date of such licenses and certificates. All moneys so paid into the State Treasury shall be credited to the general fund.

Taxidermists: Sec. 2120. [As amended by Laws of 1905, chap. 69.] * * * All professional taxidermists who mount specimens of game animals, birds or fish for profit shall be required to keep posted in a conspicuous place, in their respective shops or offices, a list of the names of all persons who furnish them with raw or unmounted specimens; and such taxidermists shall be required to exhibit such list, together with all unmounted specimens in their possession, to the State Game Warden or his Assistants upon request. * * *

County warden; Compensation; Oath; Neglect of duty; Deputies: Sec. 2124. [As amended by Laws of 1903, chap. 44.] For the more certain detection and punishment of the violators of the provisions of this title the Board of County Commissioners of any county may, in their discretion, appoint a Game and Fish Warden for the county, who shall hold his office during the pleasure of said Board, and shall be subject to removal at any time. He shall receive such compensation as the Board of County Commissioners may determine, which shall be at a rate not to exceed three dollars per day for the time actually and necessarily employed by him in the discharge of his duties, and he shall be paid out of such funds as the Board may direct. Before entering upon his duties he shall take and subscribe an oath before some officer authorized by the laws of the State to administer oaths, to faithfully perform the duties of his office. Whenever the attention of the County Game and Fish Warden is called to any violation of the provisions of this title, and he shall fail to take proper steps for the arrest and conviction of any person or persons or corporation charged with violating any of the provisions of this title he shall be guilty of a misdemeanor, and upon conviction thereof shall be fined in any sum not greater than one hundred dollars and shall have his commission revoked. Provided, that nothing in this chapter shall prevent the State Game Warden from appointing such deputies in each county as he deems necessary, as hereinbefore provided. * * *

Disposition of fines: Sec. 2125. [As amended by Laws of 1903, chap. 44.] Upon the arrest and conviction of any person or persons violating any of the provisions of the Game and Fish Laws the whole of the fine shall be paid into the general School Fund.

Arrest; Seizure; Sale of seized game; Game fund: Sec. 2126. [As amended by Laws of 1905, chap. 69.] Any officer authorized to enforce the Game and Fish Laws of this State may, without process, arrest any violator of any of the provisions of this chapter, and such officers shall with diligence cause such person to be taken before the proper court for trial or examination, which trial or examination shall be had upon complaint or information as now provided by law. Any officer authorized to enforce the game and fish laws of this State may, at any time, seize and take into custody any fish, carcass or part thereof, tusk, hide, scalp, or head which is held in possession in violation of law, or has been obtained in violation of law, and such game or fish shall be sold to the best advantage, and the money derived from the sale thereof shall be paid into the State Treasury to be credited to the State Game Fund.

Laws of 1907, chap. 47, p. 52.

[An act prohibiting capture, destruction or mutilation of game animals for their heads, antlers, horns, or tusks.]

Reward: Sec. 2. The State Game Warden is hereby authorized to offer a reward not to exceed three hundred dollars for evidence leading to the arrest and conviction of any person, or persons, violating the provisions of Section 1, hereof, which reward, when certified by the State Game Warden, shall be paid out of the state game funds.

Approved Feb. 16, 1907.

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BIOLOGICAL SURVEY—BULLETIN No. 29

C. HART MERRIAM, *Chief*

THE RELATION OF BIRDS TO THE COTTON BOLL WEEVIL

BY

ARTHUR H. HOWELL
ASSISTANT BIOLOGIST, BIOLOGICAL SURVEY

WASHINGTON
GOVERNMENT PRINTING OFFICE
1907

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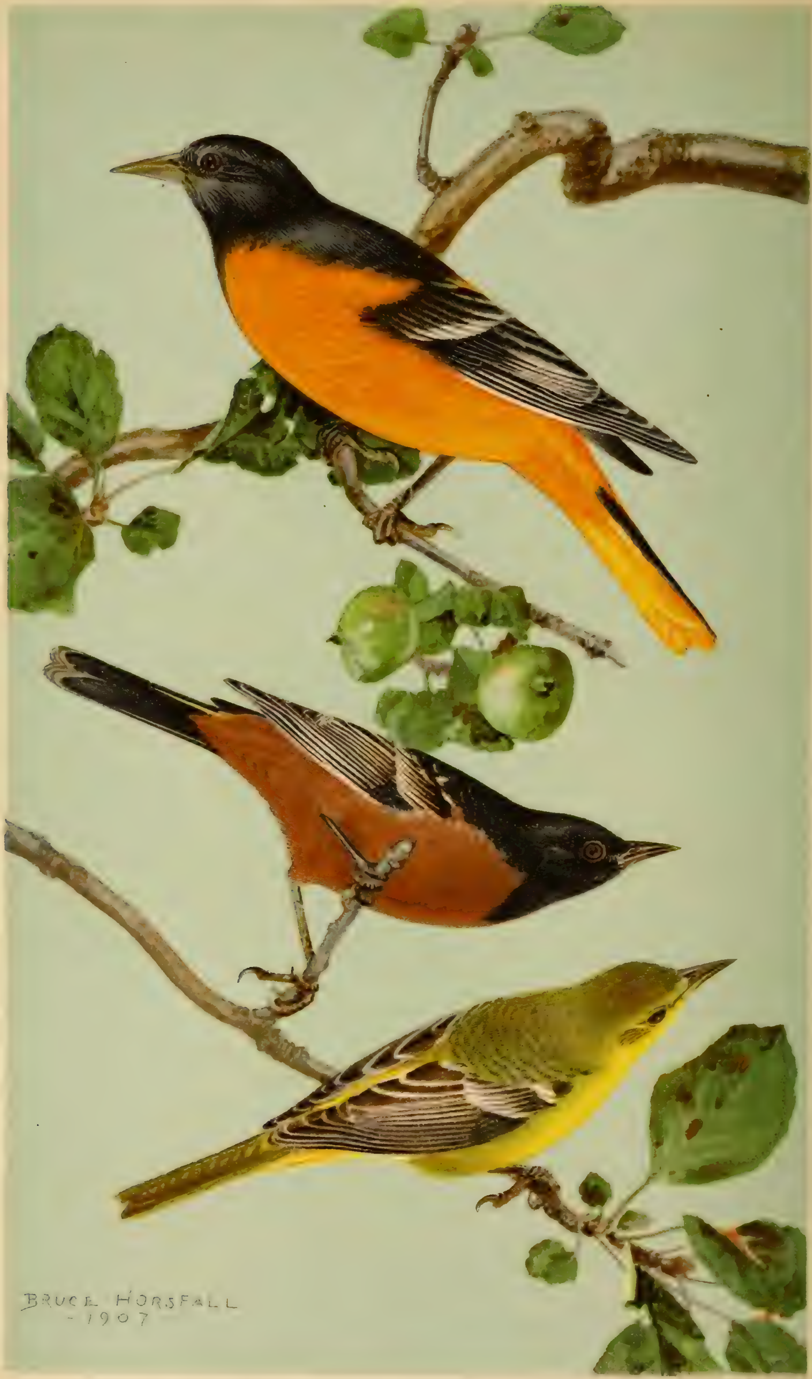

TWO IMPORTANT ENEMIES OF THE BOLL WEEVIL
[Top figure, male Baltimore Oriole; middle figure, male Orchard Oriole; bottom figure, female Orchard Oriole.]

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Biological Survey,
Washington, D. C., July 17, 1907.

Sir: I have the honor to transmit herewith for publication as Bulletin No. 29 of the Biological Survey a report of progress on the work in relation to the cotton boll weevil, by Arthur H. Howell.

As a result of investigations during the years 1906 and 1907, our knowledge of the part birds play in restricting the ravages of the pest was considerably increased, and a number of additional species were found to feed upon the weevil. Practical suggestions are made in the bulletin for increasing the numbers of swallows breeding in the cotton districts, swallows having been ascertained to be among the most important enemies of the pest.

Respectfully,
H. W. Henshaw,
Acting Chief, Biological Survey.

Hon. James Wilson,
Secretary of Agriculture.

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THE RELATION OF BIRDS TO THE COTTON BOLL WEEVIL.

INTRODUCTION.

In view of the rapid spread of the cotton boll weevil in the Southern States and the enormous damage to the cotton crop through its ravages, a study of the relations of our native birds to the pest is of increasing importance. Investigation of the problem during several seasons has shown that while birds can not be depended upon to stay its progress, much less to exterminate it, yet the service they render in controlling it is of great importance. It has been discovered that several species of birds eat great numbers of the pest and among the weevil-eating kinds are a few whose numbers it is believed can be greatly augmented through careful protection and by providing them with safe nesting places.

PROGRESS OF THE INVESTIGATION.

The relation of birds to the boll weevil has been studied by the Biological Survey during portions of four seasons, and by the Bureau of Entomology during portions of two seasons. Seventeen species of birds were examined during the seasons of 1903 and 1904 by the Bureau of Entomology, with the result that 11 species were found to feed on the weevil.[a] In November and December, 1904, Vernon Bailey, of the Biological Survey, took up the study of the problem, and, as a result of the examination of 354 stomachs collected by him, 9 additional species of birds were added to the list of boll weevil destroyers.[b] The work was carried on in the summer and fall of 1905 by the present writer, 62 species of birds being collected and examined and 8 additional species found to feed on the weevil.[c] The investigation was continued, also by the writer, in August and September, 1906, and from February 11 to May 3, 1907. Fifteen species were added to the list of weevil-eating birds by the investigations in the past two seasons, details of which will be given later.

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[a] Bul. 51, Bureau of Entomology, U. S. Dept. of Agriculture, 1905, pp. 150–153.

[b] Bul. 22, Bureau of Biological Survey, U. S. Dept. of Agriculture, 1905.

[c] Bul. 25, Bureau of Biological Survey, U. S. Dept. of Agriculture, 1906.

SUMMARY OF RESULTS.

As a result of investigations carried on intermittently during five seasons, 43 species of our native birds have been found to feed on the weevil, as follows:

Upland plover.
Killdeer.
Quail.
Nighthawk.
Scissor-tailed flycatcher.
Kingbird.
Crested flycatcher.
Phœbe.
Olive-sided flycatcher.
Alder flycatcher.
Least flycatcher.
Cowbird.
Red-winged blackbird.
Meadow lark.
Western meadow lark.
Orchard oriole.
Baltimore oriole.
Bullock oriole.
Brewer blackbird.
Bronzed grackle.
Great-tailed grackle.
Savanna sparrow.
Lark sparrow.
White-throated sparrow.
Field sparrow.
Towhee.
Cardinal.
Pyrrhuloxia.
Painted bunting.
Dickcissel.
Purple martin.
Cliff swallow.
Bank swallow.
Barn swallow.
White-rumped shrike.
Yellow warbler.
Yellow-breasted chat.
American pipit.
Mockingbird.
Brown thrasher.
Carolina wren.
Tufted titmouse.
Black-crested titmouse.

Twenty-three of the foregoing species feed on the weevil principally in summer and 20 species principally in winter. The greatest destruction of weevils in summer is wrought by swallows and orioles; in winter, by blackbirds and meadow larks. It is not to be supposed that the foregoing list includes all the birds which feed upon the boll weevil. Further investigation will doubtless add a number of species to the list and will show that birds which ordinarily eat but few weevils will, under certain conditions, destroy a good many. The funds at the command of the Biological Survey for this investigation have been very limited, but it is hoped that means will be forthcoming not only for continuing the work, but for widening its scope so as to include the regions recently invaded by the boll weevil.

RECOMMENDATIONS.

LEGISLATION NEEDED.

In order to increase the number of useful birds in a given region little need be done in most cases except to protect them from their enemies, chief of which is man.

While most insectivorous birds are adequately protected under the provisions of the present Texas game law, a few do not receive protection that deserve it. No argument is needed in support of the view that every bird that does effective service in destroying boll weevils should be protected by State laws, at least for the present. In the unlikely event that any protected species shall so increase in numbers as to threaten agricultural interests, either in the cotton-producing area or elsewhere, protection can readily be withdrawn. Protective laws, necessary and beneficial as they are, however, are not so effective in the cause of bird protection as enlightened public sentiment. It is hoped, therefore, that a knowledge of the part birds play in the boll weevil war may be widely disseminated over the cotton-producing area, and that school children may be instructed not only as to the general value of birds, but of the special importance to the South of the kinds which feed upon weevils. They should learn to know them by sight and be taught as part of the duties of good citizens to refrain from robbing their nests, from trapping them to sell abroad as cage birds, and from shooting them for food or sport.

Of the birds at present known to eat the boll weevil, the following species are afforded no protection in Texas: Upland plover, killdeer, cowbird, red-winged blackbird, Brewer blackbird, bronzed grackle or crow blackbird, and great-tailed grackle or jackdaw.

Upland plover.—Of the birds mentioned above the upland plover is in most urgent need of protection, for in recent years, through constant hunting both in spring and in fall, it has diminished markedly in numbers, and unless prompt measures are taken to save it this valuable bird is in danger of final extinction. The Louisiana game law provides a close season for the upland plover ("papabotte") from May 15 to August 1, but as at that season this plover is not found within the State, the bird is practically unprotected there. Upland plovers are almost wholly insectivorous, and in addition to eating the boll weevil in spring, when its destruction is of the highest importance, they render valuable service in destroying numbers of other injurious weevils and other insects. This plover is highly esteemed for the table and as a game bird, but its value for these purposes is infinitesimal compared to the value it possesses to the agricultural interests of the country. Because of its importance as an insectivorous bird the upland plover should be protected at all seasons, and it is considered important that an effort be made by the cotton growers of Texas and Louisiana to have this bird placed in the list of protected species in their respective States.

Killdeer plover.—The killdeer apparently is not decreasing in numbers, since it is of no value for food, and therefore is seldom shot by hunters. But in view of its taste for boll weevils and other destructive insects, the wiser course would seem to be to give it legal protection and thus afford it every opportunity to increase.

Blackbirds.—The several species of blackbirds, though not shot to any extent for food, are often killed wantonly for sport or in the belief that they are injurious to growing crops. Corn is the only crop in Texas which is liable to injury from blackbirds, and the only species likely to damage this crop to any extent is the big jackdaw, or great-tailed grackle. Investigation of the food habits of this bird by Prof. F. E. L. Beal has shown that nearly half of its food consists of corn, much of which is waste grain, and about one-fourth of insects.

The Brewer blackbird and the bronzed grackle both eat corn to some extent, but they are not generally accused of damaging this crop in Texas, and both species have a pronounced fondness for feeding on grubs and other insects in freshly plowed fields. It is believed that their destruction of boll weevils much more than compensates for any damage they may do to corn or other grain. Indeed, the writer is inclined to consider the Brewer blackbird one of the most useful birds in the State to the cotton grower.

Both the cowbird and the redwing render valuable service in the destruction of weed seed, which, in winter at least, furnishes the greater part of their food. The Louisiana law protects all blackbirds, except crow blackbirds (grackles) when actually destroying crops. A similar provision in the laws of Texas prohibiting the killing of any blackbirds, except when they are actually engaged in injuring crops, would seem to be for the best interests of the farmers of that State.

It is not absolutely necessary that the farmers wait for the enactment of protective laws, but in the absence of such laws they should take advantage of the laws against trespass and prohibit all shooting of plover and blackbirds in their cultivated fields.

BIRDS REQUIRING SPECIAL PROTECTION.

Swallows.—Information has been received by the Biological Survey that in west Texas cliff swallows (and probably also barn swallows), which breed about buildings, are frequently killed and their nests destroyed through the mistaken notion that they harbor bedbugs. As a matter of fact, the parasites which infest birds, though resembling to some extent the insects so objectionable to man, are not the same and would quickly perish away from their normal hosts. Hence, wherever these very useful swallows occur, not only should they be allowed to nest, but every effort should be made to protect them and increase their numbers.

Meadow lark.—The fact that the meadow lark is at all times protected by the laws of Texas seems not to be appreciated by many residents of the State, and in consequence many larks are shot for food or sport. In view of the large number of boll weevils destroyed by these birds, they should be rigidly protected, and farmers would do well to see that the law is enforced on their property in the case of these valuable birds.

Painted bunting.—These brilliant little sparrows are in great demand as cage birds, and, although protected in all the Southern States, large numbers are nevertheless trapped and sold to dealers. In addition to their services as weed destroyers, these buntings are now known to capture a considerable number of boll weevils. Every effort therefore should be made to stop the illegal traffic in these beautiful and useful birds.

NESTING BOXES.

Since the purple martin has been found to capture boll weevils both in the spring and in the fall, it is strongly recommended that special efforts be made by cotton growers to increase the numbers of martins feeding over their cotton fields. Though nowhere very abundant, martins are quite generally distributed in the South, so that usually all that is necessary in order to attract additional numbers to a farm is to provide nesting boxes for them. Martins are eminently social in their habits and do not ordinarily feed at a great distance from the home box, so that once a colony becomes established it may confidently be expected to increase from year to year so long as increasing accommodations are provided for the pairs that return each spring after their winter sojourn in South America.[a]

Nesting boxes may be of the simplest and homeliest construction or they may be of elaborate and artistic forms, to suit the taste of those who desire to make the martin house an ornament to the lawn or dooryard. Large gourds are often utilized as nesting boxes, the only preparation necessary being to hollow them out, cut an entrance hole, and tie them to a tall pole. The only objection to their use is that but one pair of martins can be accommodated in each gourd. The more elaborate houses usually take the shape of a residence or other building, and in such cases the entrances to the rooms represent the open lower half of windows. A martin box may contain almost any desired number of rooms, though boxes with 10 to 20 rooms, placed at intervals about the fields or close to the farm laborers' houses, would seem to best meet the requirements of the situation. The rooms should be about 5 inches wide, 7 inches high, and 8 inches deep, with entrance holes $2\frac{1}{2}$ or 3 inches in diameter. There should be only one entrance to each room. A shelf bordered by a railing should be placed beneath each doorway, in order to prevent the young from falling to the ground when they venture out of the compartment. Small holes in the shelf will prevent water from running into the doorways. A hole in each gable near the roof should be provided for ventilation.

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[a] The experience of Mr. J. Warren Jacobs, of Waynesburg, Pa., is valuable as showing how rapidly a colony will increase when provided with adequate nesting homes. In 1896 he put up a single house of 20 rooms, which was occupied by 5 pairs of martins, which raised 11 young. The next year 10 pairs returned to the house and raised 35 young. During the third and fourth seasons 2 additional houses were erected, which furnished accommodations for 53 pairs, which raised over 150 young. Thus at the end of the fourth season the colony numbered nearly 300 birds.

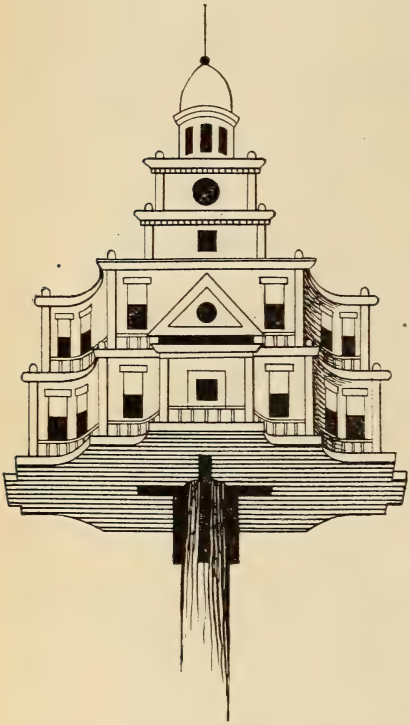

FIG. 1.—An ornamental martin house.

Mr. J. Warren Jacobs advises that all exposed portions of the houses be constructed of poplar, with the bottom of $\frac{7}{8}$-inch oak. His method of attaching the house to the pole is by means of four angle-irons screwed to the bottom of the box and to the sides of the pole. The pole should be at least 15 feet high, as the birds, through fear of cats, will not nest near the ground. If desired, the pole may be provided with a hinge near the ground or be fitted into a socket in the ground, so that the house can readily be taken down.

Mr. E. H. Forbush recommends the use of flour barrels for martin houses as being at once cheap and easily obtained. These, if kept painted and properly roofed, he says, will last for years. In fitting up the interior of the barrel a square box should be inserted in the center to furnish a back for the individual rooms. Large cigar boxes or tin cans may be utilized for the rooms, screwing them to the central box and connecting with the entrance holes by strips of tin or wood. The pole may pass through the center of the barrel and the roof may be constructed of zinc, sheet iron, or painted canvas.

The accompanying illustrations show several styles of martin boxes, and other forms will readily suggest themselves.

Where English sparrows are numerous they must be prevented from monopolizing the martin boxes. This may be accomplished by shooting or poisoning the sparrows, by closing the entrances to the nesting boxes during the winter, or by taking the boxes down until the arrival of the martins in spring.

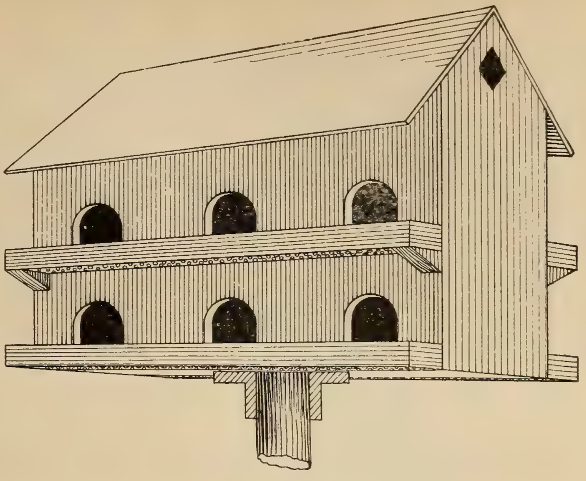

FIG. 2.—A simple martin house.

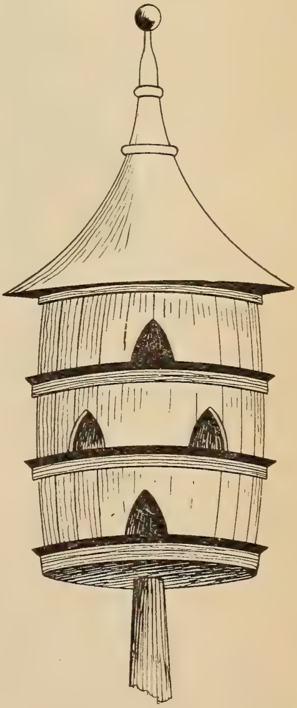

FIG. 3.—A barrel martin house.

CULTURAL METHODS.

Investigation of the habits of birds during the winter months has shown that certain species, notably Brewer blackbirds, bronzed grackles, great-tailed grackles, killdeer, and upland plover, are quickly attracted to fields where plowing or harrowing is going on, and usually when these birds have been shot while following the plow, boll weevils have been found in their stomachs. This is particularly true in fields where the ground is being newly broken or the old cotton stalks first broken down. In view of the pronounced habit on the part of many birds of feeding in cultivated fields, the following suggestions are believed to be worthy of adoption:

1. Break the ground as early in the winter as practicable, at a time when blackbirds are numerous. If after the first plowing the ground is still rough, or if there is any rubbish

about the field, continue to stir or harrow the ground and thus give the birds a chance to pick up the weevils as they are driven from their hiding places.

2. Destroy every stalk of volunteer or seppa cotton before planting time. Investigations during the very mild spring of 1907 showed clearly the folly of allowing seppa cotton to grow. The weevils emerged early from hibernation and at once began to feed on the sprouted plants, which were very numerous all over south Texas and as far north as northern Louisiana. The birds were unable to find the weevils readily after the latter had taken to the plants, and hence large numbers survived until the new cotton was large enough for them to feed upon. Had there been no seppa cotton in the fields the weevils would have been exposed to the attacks of all ground-feeding birds and their numbers would have been materially reduced.

STATUS OF THE SPECIES OF BIRDS KNOWN TO EAT THE BOLL WEEVIL.

SWALLOWS AND MARTINS.

Six kinds of swallows occur commonly in Texas, and four are known to eat the boll weevil. Since the habits of all the species are essentially alike, eventually doubtless all will be found to feed on the insect. Swallows are migratory, nesting in the United States and wintering chiefly in Central and South America. Vast numbers pass through Texas in September on their way to their winter homes, and at this season they find many boll weevils in the air, where they are easily captured. So abundant are the swallows and so marked is their taste for boll weevils that they must be accorded very high rank in the list of the enemies of this destructive insect.

Cliff swallow.—Cliff swallows, eaves swallows, or mud swallows, as they are variously called, nest commonly in the northern and western States and in the western portion of Texas as far east as Austin and Waco. They breed in colonies, and their pouch-shaped nests of mud are plastered to the face of cliffs or stone walls or under the eaves of barns. They are abundant over the greater part of Texas during the autumn migration, and in September thousands pass over the cotton fields every day.

Thirty-five specimens were collected in the fall of 1906 and all but one of them had eaten boll weevils, the majority having taken nothing else. Many of the stomachs were crammed full of the weevils. The largest number eaten by a single bird was 47, while many others had taken from 20 to 30 at a meal. The total number destroyed by these thirty-five birds was 638, an average of 18 weevils to each bird. It is of course impossible to estimate with any degree of accuracy the number of cliff swallows in the State of Texas during the month of September, but a very conservative estimate of the number passing over the town of Victoria each day of the migration is 10,000. Allowing but one meal a day and assuming that each bird consumed on an average 18 weevils per day for the period of six days during which the flight was under observation, we find that these swallows destroy in one week in a single county more than a million weevils! And this vast number is destroyed without a dollar's expense to the cotton grower. In view of this good service the folly of destroying the nests of swallows and of shooting the birds because they harbor insects is apparent, especially when it is remembered, as stated above, that the swallow parasites are not to be feared by man.

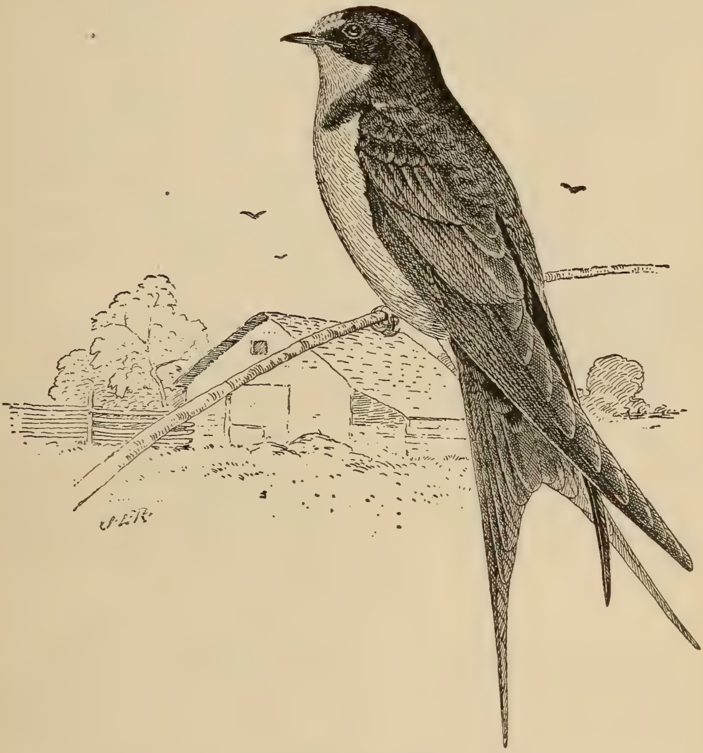

FIG. 4.—Barn swallow.

Barn swallow.—Barn swallows are common summer residents in the western portion of Texas, but for some unknown reason do not breed in the eastern part of the State. Even there they are common, however, in the fall, when they join the other swallows in coursing over the cotton fields. They fly very swiftly, often just above the tops of the plants, and many a boll weevil falls a prey to their persistent hunting. Fourteen specimens were examined in September, of which 5 contained boll weevils. The total number of weevils consumed by the 5 birds was 52 and the largest number found in one stomach 23.

Bank swallow.—These swallows, the smallest of the family, are rare in summer in Texas, but occur in large numbers during the fall migration. Twenty-five specimens were collected in September and 11 of them were found to have eaten a total of 68 boll weevils. The largest number in one stomach was 14 and the average number 6.

Purple martin.—Martins occur more or less commonly over the greater part of Texas and the other Southern States. Their abundance in a particular locality depends almost wholly on the number of nest boxes provided for their use, and no birds respond more quickly to an effort to increase their numbers. It has been found impracticable to examine many specimens of this bird, but enough have been secured to show that their food both in the spring and in the fall includes the boll weevil. The only martin collected in September contained one boll weevil, and another bird taken in May also had remains of a boll weevil in its stomach.

Like the other members of this family, martins obtain their food almost wholly in the air. They are not likely, therefore, to capture a large number of weevils except in the fall, when the insects fly freely. The destruction of even a few weevils in the spring, however, is a definite benefit to the cotton crop of that season, and the fact that the martins reach their homes about the cotton fields in February and remain until October, ever ready to snap up the weevils as they fly from plant to plant, renders their services of the highest importance.

FLYCATCHERS.

Seven species of flycatchers have been found to destroy boll weevils, and doubtless all the members of this family feed upon them during the seasons when they are in the air. Most of the flycatchers are summer residents only, but one—the phœbe—stays through the winter. At least two species—the kingbird and the crested flycatcher—begin the war on the weevil in April. It is carried on by the other species throughout the summer and by the phœbe until late autumn or even in winter.

Least flycatcher.—These little birds, the smallest of the family, seem to have a decided fondness for boll weevils, for, of the 14 specimens examined, just one-half had eaten the insect, the total number of weevils destroyed by the 7 birds being 21. The least flycatchers are northern-breeding birds, but migrate southward quite early and do their best work in August and September. These flycatchers on several occasions have been observed to fly down among the cotton plants, and it is not unlikely that they snatch the weevils directly from the plants as well as when flying.

Kingbird.—Kingbirds, sometimes called bee martins, are common in Texas and Louisiana in summer. They frequent fields and pastures and, like other flycatchers, snap up their prey on the wing. Of the 22 specimens examined in September, 6 had eaten a total of 8 weevils, and, of the 10 specimens examined in April, 1 had taken 1 weevil.

Crested flycatcher.—These flycatchers are among the larger members of the family occurring in the cotton States. They frequent timbered tracts and capture their prey usually at some distance from the ground. One specimen taken in September had eaten 3 boll weevils and 1 taken in April had eaten 2.

Scissor-tailed flycatcher.—The scissor-tails are the largest and also the most abundant flycatchers in Texas, but, unfortunately, their taste leads them to prefer somewhat larger insects than the boll weevil. They do, however, destroy a few weevils, mainly in the autumn. Ninety-one stomachs taken in July, August, and September have been examined, and 5 of them contained a total of 7 weevils.

Phœbe.—These flycatchers are winter residents over the greater part of Texas, and a few breed in the western part of the State. One specimen taken late in September had eaten a boll weevil and 3 taken in November and December had each eaten 1 weevil.

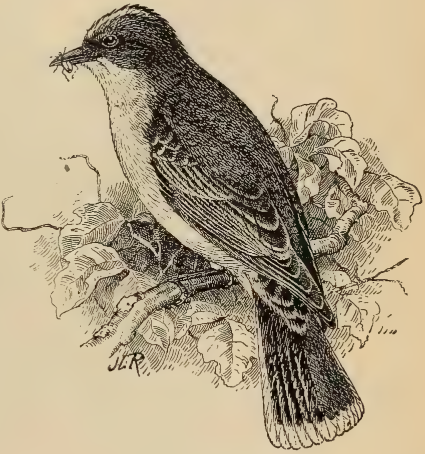

FIG. 5.—Kingbird.

Alder flycatcher.—This species, which resembles the least flycatcher in appearance, is a rare migrant in Texas. Three specimens were taken in September, 1 of which had eaten 2 boll weevils.

Olive-sided flycatcher.—This species breeds in the more northern States and Canada and is found only as a migrant in the South. Two specimens were taken in September, 1 of which had eaten 2 boll weevils.

ORIOLES.

Next to swallows, orioles are probably the greatest destroyers of the boll weevil in summer, and perhaps their services are more important than those rendered by swallows, for the reason that the orioles spend most of the spring and summer in and about the cotton fields and persistently hunt the weevils when they are feeding on the squares. The orioles pass the winter in Central America, returning to the United States in April, where they remain until October.

Orchard oriole (see frontispiece).—This oriole, the smallest of the group, is generally distributed in Texas and other Southern States. Its purse-shaped nest is built in almost any small tree in the orchard, dooryard, pasture, or field. Orchard orioles make frequent excursions to the cotton fields, especially when the young are fully fledged, and often feed for hours at a time among the cotton plants. They seem to know where to find the weevils when they are feeding upon the squares, and large numbers are destroyed by them in the course of the season.

The orioles evidently begin the work of destruction as soon as they arrive from the South, for one taken April 27 contained a boll weevil in its stomach. During the summer months, of course, they find weevils with greater ease, and at this season as many as 13 have been taken from a single stomach. About 30 per cent of the orchard orioles examined in summer contained boll weevils; the total number of weevils eaten by 30 birds was 64, an average of more than 2 to each bird.

Baltimore oriole (see frontispiece).—These brilliant orioles nest sparingly in northern Louisiana and extreme northern and eastern Texas, but over the greater part of these States they occur as migrants only, most commonly in the fall. They reach the cotton-growing districts at about the time that the weevils are making their annual flight, and join with the other orioles in reducing the numbers of the insects.. Fifty specimens have been examined, of which 11 had eaten a total of 24 weevils, an average of more than 2 to a bird, or about 50 per cent of the number of birds examined. The largest number of weevils eaten by a single bird was 9.

Bullock oriole.—This is a western species, occurring as far east in Texas as Corpus Christi, Beeville, and Austin. These orioles are rather abundant in the regions they inhabit, and in August and September visit the cotton fields in flocks of 10 to 20 individuals. About 27 per cent of those examined contained boll weevils, the largest number of weevils found in one stomach being 41. The total number of weevils eaten by 40 birds was 133, an average of over 3 weevils to each bird.

BLACKBIRDS.

Blackbirds belong in the same family with the orioles and their services as boll weevil destroyers are even more important.

Seven species occur in Texas in winter, and five of them are known to eat the boll weevil. Their work is done principally in winter and spring, at a time when it is of the highest importance. Recent investigations have shown that the greatest number of weevils are destroyed by them at the season when the cotton stalks are being raked and the ground first broken.

Brewer blackbird.—The nesting home of these blackbirds is chiefly north of Texas, but in winter vast flocks spread over the State, remaining from October to April. At that season these shiny black fellows, conspicuous by reason of their white eyes, may often be seen walking about the streets of the towns or following the plowman as he turns the furrows. About 15 per cent of the birds examined had eaten boll weevils, the average number of weevils destroyed being nearly 2 to a bird. Most of these individuals were taken in late February and March, after the spring plowing had been nearly completed. It is probable that observations made earlier in the winter would show a much larger percentage of weevils destroyed.

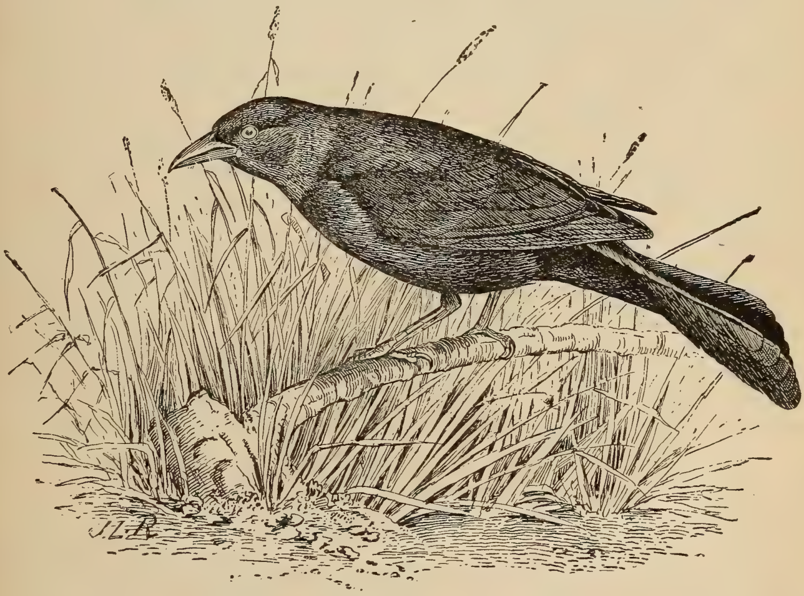

Fig. 6.—Crow blackbird or bronzed grackle.

Bronzed grackle.—Bronzed grackles or crow blackbirds breed locally in Texas, and great numbers of them pass through the State in spring and fall. They appear in large flocks in February and March, and join the other blackbirds in the fields which are being plowed or cultivated. Of the 34 specimens collected in March, 5 had each eaten a boll weevil.

Great-tailed grackle; "jackdaw."—These large blackbirds are abundant in southern Texas, wintering near the coast and moving northward in summer to about the latitude of Austin. Like other blackbirds, their destruction of boll weevils is mainly in spring, when the fields are being broken; but naturally, owing to their large size, their taste is usually for larger insects. Thirty-nine specimens collected in spring have been examined, of which only 3 had eaten boll weevils, each bird taking 1 weevil.

Red-winged blackbird.—Redwings occur in Texas at all seasons, but are much more abundant in winter than in summer. They gather in immense flocks as early in the fall as October, and forage in the fields all winter, or until the nesting season approaches in April, when the flocks disperse and the birds pair off. Their food consists very largely of weed seed, but a few insects are consumed, including some boll weevils. About 50 stomachs taken in spring and an equal number taken in autumn have been examined, and in each case 2 stomachs contained 1 weevil each. In view of the great abundance of these birds, the value of their services, particularly in spring, is not inconsiderable.

Cowbird.—Cowbirds are found in Texas in flocks during the greater part of the year, but are most abundant in winter. They associate with the redwings and Brewer blackbirds during certain seasons, and in spring often visit plowed fields to obtain weed seed. Here occasionally they pick up boll weevils. Four stomachs taken in February and March contained each 1 boll weevil, and 3 taken in July and August likewise contained each 1 weevil. Although only about 4.5 per cent of the birds collected in spring contained boll weevils, still their great abundance in the fields makes them a valuable ally of the farmer.

MEADOW LARKS.

Meadow larks are generally distributed in Texas in winter, but in summer they retire to the prairies to breed. Although feeding to some extent in plowed fields, they do not follow the plow as the blackbirds do, but seek their food among the old stalks and rubbish. Here they find and destroy many boll weevils, especially in winter at the time the ground is first broken. Eighty-seven specimens taken in February and March have been examined, and of this number 11 had eaten a total of 15 boll weevils. The percentage of larks taking weevils was much greater for the period from February 26 to March 9 than for any later period. This is explained by the fact that most of the larks collected at that time were feeding in unplowed fields, where the weevils had not been driven out. Of the 29 larks taken during that period, 10, or about 34 per cent, had eaten weevils.

Two hundred and forty-nine specimens taken in the fall have been examined, and of these 40, or about 16 per cent, had captured boll weevils, the total number of weevils eaten being 50.

SPARROWS, GROSBEAKS, ETC.

The members of this family are nearly all seed eaters, and although 10 species have been found to capture boll weevils, none of them, except the painted bunting, seem to feed regularly on the insect. Many of the smaller sparrows, however, are very abundant, so that the good they do in the aggregate is very considerable.

Painted bunting.—These brilliantly colored little sparrows are common over most of Texas in the summer months. During their southward migration in August they are particularly abundant, and at that season hundreds visit the cotton fields every day and seek their food on the plants. They seem to be the only sparrows that show a decided preference for boll weevils. Eighteen birds, or about 16.5 per cent of the number examined, had eaten a total of 19 weevils.

Cardinal; " redbird."—Cardinals are present in the South throughout the year, and in most localities are very numerous. They live chiefly in thickets about the borders of fields or in brushy timber, whence they occasionally fly into the cotton fields. Specimens taken at all seasons excepting midwinter have been examined, but only 3 have been found with boll weevils in the stomach. These were killed in September and contained a total of 4 weevils.

Pyrrhuloxia; " gray grosbeak."—This handsome grosbeak is an inhabitant of the arid mesquite belt of southwest Texas. It is common at Beeville and Runge, where 64 specimens were collected. Of these 2 had each taken a boll weevil.

Dickcissel; black-throated bunting.—These sparrows, which in general appearance resemble the English sparrow, are summer residents in Texas, and during migration are quite abundant in cotton fields. Twenty-six specimens have been examined, of which 3 had taken 1 boll weevil apiece.

Lark sparrow.—Lark sparrows are common in Texas, both in summer and in winter, and during the fall migration are particularly abundant. At that season they swarm in the cotton fields and along roadsides. About 50 specimens were collected, but only 1 had eaten a boll weevil.

Western savanna sparrow.—These are the little " grass sparrows " that are so common during the winter in the fields and meadows. Thirty-nine specimens taken in February and March were examined, and of these 3 had each eaten a boll weevil; of 18 birds taken in November and December 1 had eaten a boll weevil. In view of the great abundance of these sparrows the number of weevils destroyed by them in the course of the winter must be considerable.

White-throated sparrow.—This sparrow is a winter visitant from the North, remaining in Texas from November to April. The white-throats spend their time in thickets and brush piles, scratching among the dead leaves and rubbish. Of 9 specimens taken in the fall, 1 had eaten a boll weevil. None of the 13 specimens taken in spring had eaten any.

Field sparrow.—Field sparrows occur in Texas both in winter and in summer, more commonly, however, in the winter. They are lovers of brushy pastures and weedy borders of fields. Of 7 specimens taken in February and March, 1 had eaten a boll weevil.

Towhee; chewink.—These rather large sparrows pass the winter in Texas, feeding in thickets and brushy pastures. Of the 6 specimens collected in spring, 1 had eaten a boll weevil.

UPLAND PLOVER.

These fine birds, known as "plover" or "papabotte" in the South, in recent years have been very much reduced in numbers. Breeding in the North from Kansas to Canada, and wintering in South America, they pass through Texas in spring and fall, when great numbers are shot for food. They are essentially prairie dwellers and only occasionally come into the bottomland fields; but wherever the prairies are cultivated they visit the plowed fields in considerable numbers and pick up a great many insects. In fact their food consists almost exclusively of insects and, besides the boll weevil, includes great numbers of other weevils. Of the plover thus far examined, only 13 have been taken in cotton fields. One of these, collected April 9 at Columbus, Tex., contained a boll weevil. Forty-eight specimens taken on the prairies in March were examined, but while their stomachs were filled with weevils of several species and other insects, no boll weevils were found. The fact that the plover are so fond of weevils strongly suggests that if their numbers can be increased by protection, so that more of them will visit cotton fields, they will render valuable aid in destroying the boll weevil. Their spring migration brings them to south Texas about March 15, and from that date until May 1 or later they are moving gradually northward across the State. They are thus present at the most critical period in the development of the boll weevil, and every weevil destroyed at this time means a great deal to the cotton grower. Their autumn migration brings them into the cotton districts in August, when they are said to visit the cotton fields in numbers. Further investigations are necessary to show the nature of their food at this season.

KILLDEER.

Killdeers breed throughout Texas and Louisiana and winter abundantly in the southern portion of these States. Although mainly a bird of the pasture, they frequently visit plowed fields, and in spring gather in flocks to feed in the freshly-turned furrows. Twenty-one specimens taken in February and March have been examined, and of these 1 had eaten 2 boll weevils, another 3. In the summer and fall they rarely feed in the fields.

QUAIL.

Quail stomachs to the number of nearly 200, taken in every month excepting January, May, and June, have been examined, and thus far only 1 boll weevil has been found. Quails are very largely seed eaters, insects forming only about 15 per cent of their food for the entire year.[a] Under favorable conditions they are likely to pick up some boll weevils, but in view of the results of stomach examinations already made, they can not be expected to destroy large numbers of weevils, and statements of quails' crops found "filled with weevils," which appear from time to time in the newspapers, must be taken with many grains of allowance.

NIGHTHAWK; "BULL BAT."

Nighthawks breed locally throughout Texas and Louisiana, particularly in plains and prairie regions, but usually are not abundant in farming districts, except during migrations. Only 10 specimens, taken in August and September, have been examined, and of these 4 contained a total of 15 boll weevils. Two of these birds had each eaten 6 weevils. Nighthawks are thus seen to be important enemies of the boll weevil, and wherever they occur they should be carefully protected.

WARBLERS.

The warbler family is represented in Texas by a large number of species, most of which are inhabitants of woodland. A few species have been observed in cotton fields, and two of them have been found to eat boll weevils.

Yellow warbler.—Yellow warblers are common in Texas in summer, and during August and September they frequent the cotton fields in some numbers. Twenty-five specimens have been examined, 1 of which had eaten a boll weevil.

Yellow-breasted chat.—Chats occur sparingly in the timbered portions of Texas. They are lovers of thickets and usually are so shy that they are not often seen. Five specimens were taken in September in a cotton field bordered by thickets, and 1 was found to have eaten a boll weevil.

TITMICE AND WRENS.

Two species of titmice and the Carolina wren have been found to destroy boll weevils. They are forest-loving birds and their work is done chiefly during the winter, when the weevils are in hiding.

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[a] Judd, Bul. 21, Biological Survey, U. S. Dept. of Agriculture, 1905, p. 37.

Tufted titmouse and black-crested titmouse.—One or the other of these closely related species is found over most of the timbered portions of Texas, the tufted titmouse being the more eastern and the black crested the more western in distribution. The former only is found in Louisiana. One tufted tit taken in March and 1 black-crested tit taken in December had each eaten 1 boll weevil. More specimens taken in winter would probably furnish additional evidence of their value as weevil destroyers. The absence of boll weevils from 23 stomachs taken in April and May merely indicates that by this time the weevils had left their winter quarters in the timber and therefore were inaccessible to the titmice.

Carolina wren.—These sprightly little wrens live in the timbered sections of Texas and Louisiana throughout the year. They frequent dense thickets and are especially fond of clearings choked with fallen timber. In such situations they seek and capture boll weevils during the period of hibernation. Of specimens taken in the fall (November and December), 5 had eaten a total of 6 boll weevils. Their record in spring is not so good, for of 14 specimens examined in March and early April only 1 contained weevils. This one was shot in a tree heavily covered with Spanish " moss " in which the bird had a nest. The 2 weevils which he had eaten were doubtless taken from the moss, where they are known to hibernate.

MOCKINGBIRD.

Mockingbirds, taken in every period of the year excepting mid-winter, have been examined, but very few boll weevils have been found in their stomachs. Two birds shot on February 24 each contained 1 boll weevil,[a] but 35 others taken in February, March, and April showed no boll weevils in the stomach contents. In summer, 85 specimens have been examined, only 5 of which contained boll weevils, each of these containing 1 weevil.

WHITE-RUMPED SHRIKE.

Shrikes, known in the South under the names " loggerhead " and " French mockingbird," are generally distributed over the cotton country, being more common in winter than in summer.

Fifty-four specimens, taken at all seasons, have been examined, only 2 of which contained boll weevils. These 2 were taken in December, 1 of them having eaten 4 weevils, the other 1.

AMERICAN PIPIT.

Pipits, or titlarks, as they are sometimes called, breed in the North and winter abundantly in Texas. At that season large flocks visit the cotton fields and run about among the old stalks in search of food. Thirteen specimens have been examined, of which 3, taken in November, had eaten a total of 4 boll weevils.

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[a] Bul. 51, Bureau of Entomology, U. S. Dept. of Agriculture, 1905, p. 153.

BROWN THRASHER.

Brown thrashers are common winter residents in Texas and Louisiana, inhabiting thickets and brushy timber. Only 1 of the 38 specimens examined had eaten a boll weevil.

INVESTIGATIONS IN THE SUMMER OF 1906.

FIELD CONDITIONS.

At the time field investigations were being conducted in 1906 (August and September) boll weevils had reached about their maximum numbers. In nearly every locality visited they were more abundant than at a corresponding date in 1905. The damage to the crop in many sections was very serious; in others the infestation came too late to injure much more than the " top crop."

During September the weevils made their annual migration, and at that time large numbers of them were captured in the air by birds that feed on the wing.

Birds were rather scarce in east Texas and Louisiana, but abundant in south Texas. Of the 314 specimens collected about one-fourth had captured boll weevils. At one locality (Victoria) 42 per cent of the birds examined had eaten boll weevils.

SUMMARY OF OBSERVATIONS.

Logansport, La., August 25–27.—Weevils were abundant here and had damaged the crop very considerably. Late planted cotton especially had been able to mature very few bolls. The fields here are not extensive, so that the weevils were concentrated on the comparatively small area of cotton bearing buds and bolls. Thirty plants were examined and 78 weevils found. Five larvæ were found in one boll.

Birds were scarce here, excepting woodpeckers. Nineteen specimens were taken, most of them in the brush bordering a cotton field close to the river. Only 2 birds had eaten boll weevils—a crested flycatcher, which had eaten 3, and a mockingbird, which had eaten 1.

Columbus, Tex., September 4–6.—Cotton was in fine condition here and a fair crop of bolls had already matured. Squares were still abundant on the plants, but over 50 per cent of them were punctured. Weevils were numerous, 48 having been found on 40 plants. Grasshoppers also were abundant and furnished food for many birds. Cotton worms were present in small numbers. Birds were not common about the cotton fields, though a good many were seen in the timber and around the dooryards in town. Cliff swallows and bank swallows were quite numerous, and about 30 rough-winged swallows were seen. Twenty-two birds were collected, but only 3 had taken boll weevils. One cliff swallow had eaten 6, another 20 boll weevils, these being the only birds of the species taken. Two bank swallows were collected, 1 of which had eaten 2 boll weevils.

Victoria, Tex., September 10–15, 1906.—The cotton fields in the river bottom here are extensive. Cotton worms were abundant and quite generally distributed; some of the fields had been entirely stripped of leaves and buds by them, while other fields were in process of denudation. Boll weevils also were abundant, but on account of the ravages of the cotton worms were concentrated on the green cotton, and doubtless large numbers were flying about from field to field in search of food. September 10, 25 plants were examined and 40 weevils found on them; September 14, 15 plants were examined and 89 weevils found—an average on both days of about 3 to the plant. This count was made, of course, in fields where there were still a good many squares.

Birds were abundant here, and 150 specimens of 22 species were collected; 63 individuals of 12 species were found to have eaten boll weevils. Four of the 7 species of flycatchers present here had eaten weevils—the kingbird, olive-sided flycatcher, least flycatcher, and alder flycatcher. The kingbird was quite numerous, and of the 12 specimens taken 6 had eaten a total of 8 weevils. Two olive-sided flycatchers were taken, one of which had eaten 2 boll weevils. The smaller flycatchers were quite numerous, and 3 species were taken; of the 2 alder flycatchers taken 1 had eaten 2 weevils, and of the 4 least flycatchers 2 had eaten 5 weevils apiece. Both the orchard oriole and the Baltimore oriole were present in some numbers, but they seemed to feed on the weevil less frequently than during last summer (1905). Fourteen orchard orioles were collected, and of these only 3 had eaten weevils—1 taking 2, another 1, and another 13 weevils. Of 13 Baltimore orioles taken, only 1 had eaten the weevil—this one taking 9 weevils. It seems probable that the abundance of cotton worms induced the orioles to neglect the boll weevils.

Swallows were the most abundant birds here during the writer's stay, and all of the 4 species taken proved to be feeding on boll weevils. The cliff swallow was the most abundant species, and several thousand passed over each day in their leisurely southward migration. Frequently 25 to 50 were in sight at once over the cotton fields, and on some days a continuous stream of swallows was passing for several hours at a time. They flew usually at a height of 20 to 30 feet above the ground, occasionally, however, rising to a considerably greater height. Thirty-three specimens were collected, and all but 1 of them had eaten boll weevils. The total number of weevils destroyed by the 32 birds was 612, an average of 19 to the bird. The largest number taken by one bird was 47.

The bank swallow was almost as common as the cliff swallow, and the habits of the two are quite similar. Twenty-two specimens were taken and 9 of them found to have eaten boll weevils. The largest number eaten by a single bird was 14, the total consumed by the 9 birds was 63, and the average per bird 7.

The barn swallow was less common than the other species of swallows, and their habits differ slightly from those of the others. They were most often seen skimming swiftly over the cotton only a short distance above the tops of the plants. They flew back and forth across the fields many times, and the evidences of a movement southward were not apparent. Eleven specimens were taken, and of these 5 had eaten a total of 52 boll weevils, an average of over 10 per bird. The largest number eaten by a single bird was 23.

Several purple martins were seen, but only one secured. This one contained fragments of a boll weevil.

Two species of warblers taken here—the chat and the yellow warbler—were each found to have eaten boll weevils. Five specimens of each were taken, and 1 bird of each species had eaten 1 weevil apiece.

Beeville, Tex., September 17–19.—Weevils were quite scarce at Beeville this season, and the damage to the cotton by them was comparatively slight. At the time of the writer's visit there were few squares on the plants, and consequently many plants harbored no weevils. By selecting and examining 30 plants on which there was a moderate number of squares 23 weevils were found. Cotton worms were present in small isolated colonies.

Birds were much less numerous than in August of the preceding year. Twenty-two specimens were taken, including 11 orioles. Six of the orioles had eaten boll weevils. The single orchard oriole taken had eaten 1 weevil, the single Bullock oriole taken had eaten 2 weevils, and of the 9 Baltimore orioles taken 4 had eaten a total of 5 weevils.

Runge, Tex., September 20–25.—Cotton was still growing and putting on squares at the time of my visit. Weevils were abundant, almost every plant harboring some of the insects, except in fields where the leaf worm had defoliated the plants. Twenty-five plants were examined and 52 weevils found. Cotton worms were only moderately common and locally distributed.

Birds were fairly abundant, but the species known to eat the most weevils were scarce. Thirty-nine specimens were taken, but only 3 birds had eaten boll weevils. Five nighthawks were secured, 2 of which had eaten boll weevils—1 taking 2, the other 6. Fourteen scissor-tailed flycatchers were taken, only 1 of which had eaten a boll weevil.

Kerrville, Tex., September 28–29.—Several fields of cotton at Lacey's ranch, on Turtle Creek, were examined, and weevils were found to be quite common. Twenty-seven individuals were found on 10 plants.

Cardinals were numerous, and 4 were shot in a cotton field. One of these had eaten 2 boll weevils. Two phœbes also were taken here, 1 of which had eaten a boll weevil.

INVESTIGATIONS IN THE WINTER AND SPRING OF 1907.

FIELD CONDITIONS.

The winter of 1906–7 in Texas and Louisiana was unusually mild and generally quite dry. Over most of the cotton-growing area of these States frosts were few and light, and seppa cotton was found commonly, in April, even as far north as Waco, Tex., and Mansfield, La. Such conditions were extremely favorable to the hibernating boll weevils, and in portions of south Texas they were more or less active throughout the winter. Large numbers emerged from hibernation in March, and during that month many were found feeding on seppa cotton. Judging from the small number of weevils found in birds' stomachs taken in April, it seems probable that by that time the majority had emerged from hibernation and begun to feed on the young cotton plants.

Observations were carried on chiefly at five localities in south and central Texas and northwestern Louisiana. A comparison of the relative number of weevils found in the birds examined at different periods shows clearly that the best work of birds is accomplished early in the season, while the weevils are still in their hibernating quarters. Thus in the period from February 11 to 16 in south Texas, with seppa cotton abundant, 6.6 per cent of the birds examined contained boll weevils; from February 26 to March 9 in central Texas, with the seppa cotton scarce, 13 per cent contained boll weevils; from March 12 to April 11 in south Texas (same localities as in February) 2.7 per cent contained boll weevils; from April 12 to 24 in central Texas (same localities as in March) none contained boll weevils, and from April 26 to May 23, in northwestern Louisiana, 2.3 per cent contained boll weevils.

SUMMARY OF OBSERVATIONS.

Cuero, Tex., February 11–12.—Nearly all fields were plowed and cotton was being planted. Birds were abundant, particularly vesper sparrows and savanna sparrows. A few small flocks of Brewer blackbirds were feeding in the plowed fields. Eleven of these blackbirds were collected and 4 were found to have eaten boll weevils, one taking 4 weevils, the others 1 each. Seven of the savanna sparrows were taken and in 1 a boll weevil was found.

Victoria, Tex., February 13–16.—Most of the fields in this vicinity had been plowed and some had been planted. Dry weather had retarded the farming operations on many of the farms. Brewer blackbirds were quite abundant and 22 specimens were taken, most of them in a large field in process of being plowed, in which the stalks had been broken down a month or more ago. There was considerable rubbish, consisting of dead grass and old cotton bolls and stalks, on the ground in this field, but a careful examination of a half bushel of this rubbish failed to show any weevils. Three of the Brewer blackbirds taken in the field, however, had each eaten a boll weevil, and 2 taken in another field had each captured 3 boll weevils. Sixteen killdeer were taken in the field above referred to, but none of them had eaten weevils. They fed mainly on large, juicy larvæ turned up by the plow. A single killdeer shot while flying over a pasture near town had remains of 2 boll weevils in its stomach. Savanna sparrows were abundant here, as at Cuero, and of the 7 birds taken, 1 contained a boll weevil.

Gurley, Tex., February 26 to March 9.—At this date only about half of the Gurley ranch had been plowed and no cotton had as yet been planted. Birds were only moderately abundant, the most numerous species being meadow larks, savanna sparrows, and vesper sparrows. One hundred and forty-six specimens of 29 species were collected here, and 19 individuals, or 13 per cent of the total number taken, were found to have eaten boll weevils. The weevils at this date were probably found in their hibernating quarters or else crawling about in search of cotton plants on which to feed. Large flocks of blackbirds of several species flew nightly down the valley to roost, but very few of them alighted in the fields to feed. A flock of bronzed grackles lived for several days about the fields, following the plow in the furrow or the harrow as the old stalks were being raked. Eighteen specimens of this blackbird were taken, 5 of which had each eaten a boll weevil. These 5 birds were all taken in one day in a small field where the old cotton stalks were being raked.

Eleven eastern meadow larks and 18 western meadow larks were taken in the fields, and of this number 3 of the eastern larks and 7 of the western larks had eaten boll weevils, the total number of weevils taken by the 10 birds being 14. They were not in the habit of following the plow, as the blackbirds do, but fed in the open portions of the unplowed fields or among the standing stalks of cotton left from last season. The weevils eaten by them were doubtless picked up from the rubbish scattered about the fields.

Only 4 of the savanna sparrows were examined, and of these 1 contained a boll weevil. These sparrows were very numerous about the fields and the number of weevils destroyed by them at this season must be very large. Two other members of the sparrow family were found to have eaten boll weevils—the little field sparrow and the larger chewink or towhee bunting. Both of these species frequent the dense thickets and the field sparrow is found also about the brushy borders of the cotton fields. Five of the towhees and 4 of the field sparrows were collected, and one of each had eaten a boll weevil.

The tufted titmouse occurs sparingly in this portion of Texas, living in the timbered bottoms and in the post oaks. The single bird collected at Gurley contained a boll weevil, which had probably been secured in the upland timber.

Cuero, Tex., March 12–22.—At this date most of the cotton had been planted and much of it was up from 1 to 2 inches. On account of the unusual mildness of the past winter, a great many plants of seppa cotton were growing in the fields, and upon these plants most of the weevils were feeding. On March 18, 100 plants of seppa were examined for boll weevils and 14 of the insects found.

Blackbirds of three species—Brewer blackbirds, redwings, and cowbirds—were abundant in the fields, where they settled in large flocks, numbering a thousand or more, to feed on insects turned up by the plows. Meadow larks and savanna sparrows also were quite numerous, but other birds were rather scarce. About 200 specimens were taken, but only 6 individuals had eaten boll weevils. Of the 48 Brewer blackbirds collected, 3 had eaten 1 weevil apiece, and of the 60 cowbirds taken, 3 had likewise eaten 1 weevil each. These results indicate clearly that the birds do not find the weevils to any extent after they have begun to feed on the young cotton, and demonstrate the necessity for destroying every stalk of seppa cotton in order that the weevils which emerge early from hibernation may be deprived of food and at the same time exposed to the attacks of the birds.

Victoria, Tex., March 25 to April 4.—Conditions here were much the same as at Cuero. Cotton was 1 or 2 inches high and receiving the first cultivation before being thinned. Boll weevils were numerous, and said to have been more or less active all winter. Twenty stalks of seppa examined on April 1 showed 12 feeding weevils. Two hundred and twenty-nine birds were collected, but only 5 individuals had eaten boll weevils.

Blackbirds were still abundant, though less so than in February. Five species were represented, the most numerous being the redwings, the bronzed grackles, and the great-tailed grackle or jackdaw.

The redwings fed mainly in pastures grown up to huisache, but they were occasionally seen in cultivated fields. Of the 18 specimens collected, 2 were found to contain 1 boll weevil each. The great-tailed grackles were very fond of following the plow, but only 1 of the 17 birds taken had picked up a boll weevil. The meadow larks were much reduced in numbers, most of them having retired to the prairies to breed. Eight specimens were taken in the fields and the stomach of one of them contained a boll weevil.

Columbus, Tex., April 6–11.—Cotton was a little farther advanced here than at Victoria, and there was a large quantity of seppa growing in most of the fields. Six boll weevils were found on 25 stalks of the seppa. Birds were rather scarce about the fields. About 50 specimens were collected, only 2 of which had eaten boll weevils.

Four Carolina wrens were taken in the timber along the river, and the stomach of 1 of them contained 2 boll weevils. A flock of about 15 upland plover was found feeding in a cultivated field, where they followed the plowman or ran about among the young cotton and corn in search of insects. They were very wild, but 6 specimens were secured, 1 of which had eaten a boll weevil.

Gurley, Tex., April 12–24.—At this date cotton was 3 or 4 inches high, but not yet thinned. Only a few stalks of seppa had survived the frosts, but these had been discovered by the weevils, which were thus provided with food until the planted cotton became available. Three weevils were found on 1 seppa plant and 1 on another.

Birds were rather scarce at this date. About 100 specimens were taken, mainly the smaller brush-inhabiting species, but none of them had eaten boll weevils.

Mansfield, La., April 26 to May 3.—On account of a cold, wet spring the cotton here was very backward, and most of it had been planted over once or even twice. Seppa cotton had survived the late frosts, however, and boll weevils were found feeding on these plants.

Birds were very abundant, particularly woodpeckers, wrens, titmice, wood pewees, and orchard orioles. Most of them, however, fed in the timber where insect food was abundant. Kingbirds were numerous about the fields and pastures, and of 8 specimens collected 1 had captured a boll weevil.

Crested flycatchers were not common and, as they frequent the taller trees in the woods, it was somewhat of a surprise to find 2 boll weevils in the stomach of a specimen, shot from the top of a large pine, at some distance from the cotton fields.

The orchard orioles, whose usefulness during the summer months as boll weevil destroyers has been well established, were found to be already beginning their good work. Eighteen specimens were examined and 1 of them (taken April 27) had eaten a boll weevil.

SCHEDULES OF STOMACH EXAMINATIONS.

RECORD OF BIRDS EXAMINED WHICH HAD EATEN BOLL WEEVILS.

Species.	During January, February, and March.			During April, May, and June.			During July, August, and September.			During October, November, and December.		
	No. of birds examined.	No. eating boll weevils.	No. of boll weevils eaten.	No. of birds examined.	No. eating boll weevils.	No. of boll weevils eaten.	No. of birds examined.	No. eating boll weevils.	No. of boll weevils eaten.	No. of birds examined.	No. eating boll weevils.	No. of boll weevils eaten.
Upland plover (*Bartramia longicauda*)	48	....	....	13	1	1	1	....	....	....	....	....
Killdeer (*Oxyechus vociferus*)	21	2	5	1	....	....	6	....	....	1	....	....
Texan quail (*Colinus virginianus texanus*)	40	....	....	10	....	....	38	....	....	108	1	1
Western nighthawk (*Chordeiles v. henryi*)	....	....	....	....	....	....	10	4	15	....	....	....
Scissor-tailed flycatcher (*Muscivora forficata*)	....	....	....	....	....	....	91	5	7	....	....	....
Kingbird (*Tyrannus tyrannus*)	....	....	....	10	1	1	22	6	8	....	....	....
Crested flycatcher (*Myiarchus crinitus*)	....	....	....	7	1	2	5	1	3	....	....	....
Phœbe (*Sayornis phœbe*)	8	....	....	....	....	....	2	1	1	13	3	3
Olive-sided flycatcher (*Nuttallornis borealis*)	....	....	....	....	....	....	2	1	2	....	....	....
Alder flycatcher (*Empidonax traillii alnorum*)	....	....	....	....	....	....	3	1	2	....	....	....
Least flycatcher (*Empidonax minimus*)	....	....	....	....	....	....	14	7	21	....	....	....
Cowbird (*Molothrus ater*)	88	4	4	....	....	....	84	3	3	24	....	....
Red-winged blackbird (*Agelaius phœniceus*)	34	1	1	16	1	1	11	....	....	49	2	2
Meadow lark (*Sturnella magna* and subspecies)	37	4	6	1	....	....	1	....	....	183	28	32
Western meadow lark (*Sturnella neglecta*)	50	7	9	....	....	....	....	....	....	66	12	18
Orchard oriole (*Icterus spurius*)	....	....	....	20	1	1	101	30	64	....	....	....
Baltimore oriole (*Icterus galbula*)	....	....	....	2	....	....	50	11	24	....	....	....
Bullock oriole (*Icterus bullocki*)	....	....	....	....	....	....	149	40	133	....	....	....
Brewer blackbird (*Euphagus cyanocephalus*)	101	15	28	1	....	....	....	....	....	5	2	2
Bronzed grackle (*Quiscalus q. æneus*)	36	5	5	19	....	....	3	....	....	3	....	....
Great-tailed grackle (*Megaquiscalus major macrourus*)	32	2	2	7	1	1	6	....	....	2	....	....
Western savanna sparrow (*Passerculus s. alaudinus*)	39	3	3	2	....	....	....	....	....	18	1	1
Western lark sparrow (*Chondestes grammacus strigatus*)	....	....	....	13	....	....	54	1	1	....	....	....
White-throated sparrow (*Zonotrichia albicollis*)	9	....	....	4	....	....	....	....	....	9	1	1
Field sparrow (*Spizella pusilla*)	7	1	1	....	....	....	5	....	....	....	....	....
Towhee (*Pipilo erythrophthalmus*)	5	1	1	1	....	....	....	....	....	6	....	....
Cardinal (*Cardinalis cardinalis*)	21	....	....	7	....	....	39	3	4	....	....	....
Texan pyrrhuloxia (*Pyrrhuloxia sinuata texana*)	....	....	....	....	....	....	64	2	2	....	....	....
Painted bunting (*Passerina ciris*)	....	....	....	....	....	....	109	18	19	....	....	....
Dickcissel (*Spiza americana*)	....	....	....	1	....	....	26	3	3	....	....	....
Purple martin (*Progne subis*)	....	....	....	15	1	1	5	1	1	....	....	....
Cliff swallow (*Petrochelidon lunifrons*)	1	....	....	1	....	....	35	34	638	....	....	....
Barn swallow (*Hirundo erythrogastra*)	....	....	....	....	....	....	14	5	52	16	....	....
Bank swallow (*Riparia riparia*)	....	....	....	....	....	....	25	11	68	....	....	....
White-rumped shrike (*Lanius l. excubitorides*)	19	....	....	4	....	....	19	....	....	12	2	5
Yellow warbler (*Dendroica æstiva*)	....	....	....	....	....	....	25	1	1	....	....	....
Yellow-breasted chat (*Icteria virens*)	....	....	....	....	....	....	5	1	1	....	....	....
American pipit (*Anthus pensilvanicus*)	5	....	....	....	....	....	....	....	....	8	3	4
Mockingbird (*Mimus polyglottos*)	24	2	2	13	....	....	85	5	5	5	....	....
Brown thrasher (*Toxostoma rufum*)	2	....	....	7	....	....	....	....	....	29	1	1
Carolina wren (*Thryothorus ludovicianus*)	7	....	....	31	1	2	1	....	....	7	5	6
Tufted titmouse (*Bæolophus bicolor*)	1	1	1	23	....	....	....	....	....	....	....	....
Black-crested titmouse (*Bæolophus atricristatus*)	....	....	....	....	....	....	1	....	....	2	1	1

RECORD OF BIRDS EXAMINED WHICH HAD NOT EATEN BOLL WEEVILS.

Species.	Number of birds examined during—			
	January, February, and March.	April, May, and June.	July, August, and September.	October, November, and December.
Mourning dove (*Zenaidura macroura*)	2	......	115	112
Mexican ground dove (*Chæmepelia passerina pallescens*)	......	......	......	5
Yellow-billed cuckoo (*Coccyzus americanus*)	......	1	48	......
Downy woodpecker (*Dryobates pubescens*)	......	4	......	......
Red-cockaded woodpecker (*Dryobates borealis*)	......	2	......	......
Texan woodpecker (*Dryobates scalaris bairdi*)	......	......	4	2
Red-headed woodpecker (*Melanerpes erythrocephalus*)	......	14	4	3
Red-bellied woodpecker (*Centurus carolinus*)	......	......	2	2
Golden-fronted woodpecker (*Centurus aurifrons*)	......	......	4	......
Flicker (*Colaptes auratus*)	2	1	1	3
Wood pewee (*Contopus virens*)	......	18	4	......
Yellow-bellied flycatcher (*Empidonax flaviventris*)	......	......	6	......
Green-crested flycatcher (*Empidonax virescens*)	......	1	1	......
Blue jay (*Cyanocitta cristata*)	......	1	1	2
Rusty blackbird (*Euphagus carolinus*)	......	......	......	10
Western vesper sparrow (*Poœcetes gramineus confinis*)	21	......	......	11
Western grasshopper sparrow (*Ammodramus s. bimaculatus*)	12	2	......	5
White-crowned sparrow (*Zonotrichia leucophrys*)	3	8	......	4
Western tree sparrow (*Spizella m. ochracea*)	......	......	......	5
Clay-colored sparrow (*Spizella pallida*)	......	7	......	......
Bachman sparrow (*Aimophila a. bachmani*)	......	3	......	......
Lincoln sparrow (*Melospiza lincolni*)	14	8	......	......
Fox sparrow (*Passerella iliaca*)	2	......	......	9
Blue grosbeak (*Guiraca cærulea*)	......	......	3	......
Indigo bunting (*Passerina cyanea*)	......	2	1	......
Summer tanager (*Piranga rubra*)	......	7	1	......
Rough-winged swallow (*Stelgidopteryx serripennis*)	......	2	7	......
Cedar waxwing (*Ampelis cedrorum*)	......	5	......	......
Red-eyed vireo (*Vireosylva olivacea*)	......	5	1	......
White-eyed vireo (*Vireo noveboracensis*)	1	7	2	......
Nashville warbler (*Vermivora rubricapilla*)	......	......	4	......
Myrtle warbler (*Dendroica coronata*)	2	3	......	......
Pine warbler (*Dendroica vigorsi*)	......	5	......	......
Kentucky warbler (*Oporornis formosa*)	......	3	......	......
Mourning warbler (*Oporornis philadelphia*)	......	6	......	......
Northern yellowthroat (*Geothlypis trichas brachidactyla*)	1	1	1	......
Curve-billed thrasher (*Toxostoma curvirostre*)	......	6	1	......
Texan Bewick wren (*Thryomanes bewicki cryptus*)	2	......	3	2
Western house wren (*Troglodytes aëdon parkmani*)	4	2	......	......
Blue-gray gnatcatcher (*Polioptila cærulea*)	1	11	......	......
Brown-headed nuthatch (*Sitta pusilla*)	......	7	......	......
Hermit thrush (*Hylocichla g. pallasi*)	2	1	......	......
Bluebird (*Sialia sialis*)	3	22	......	6

Issued November 11, 1907.

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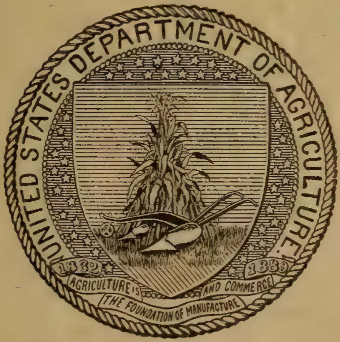
BIOLOGICAL SURVEY—BULLETIN No. 30
C. HART MERRIAM, *Chief*

BIRDS OF CALIFORNIA

IN RELATION TO THE FRUIT INDUSTRY

PART I

By F. E. L. BEAL
Assistant, Biological Survey



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WASHINGTON, D. C.

Washington, D. C., November 19, 1907.

You will oblige by returning in inclosed envelope, which requires no postage, the second copy of Bulletin No. 31 forwarded instead of Bulletin No. 30, a copy of which is inclosed herewith.

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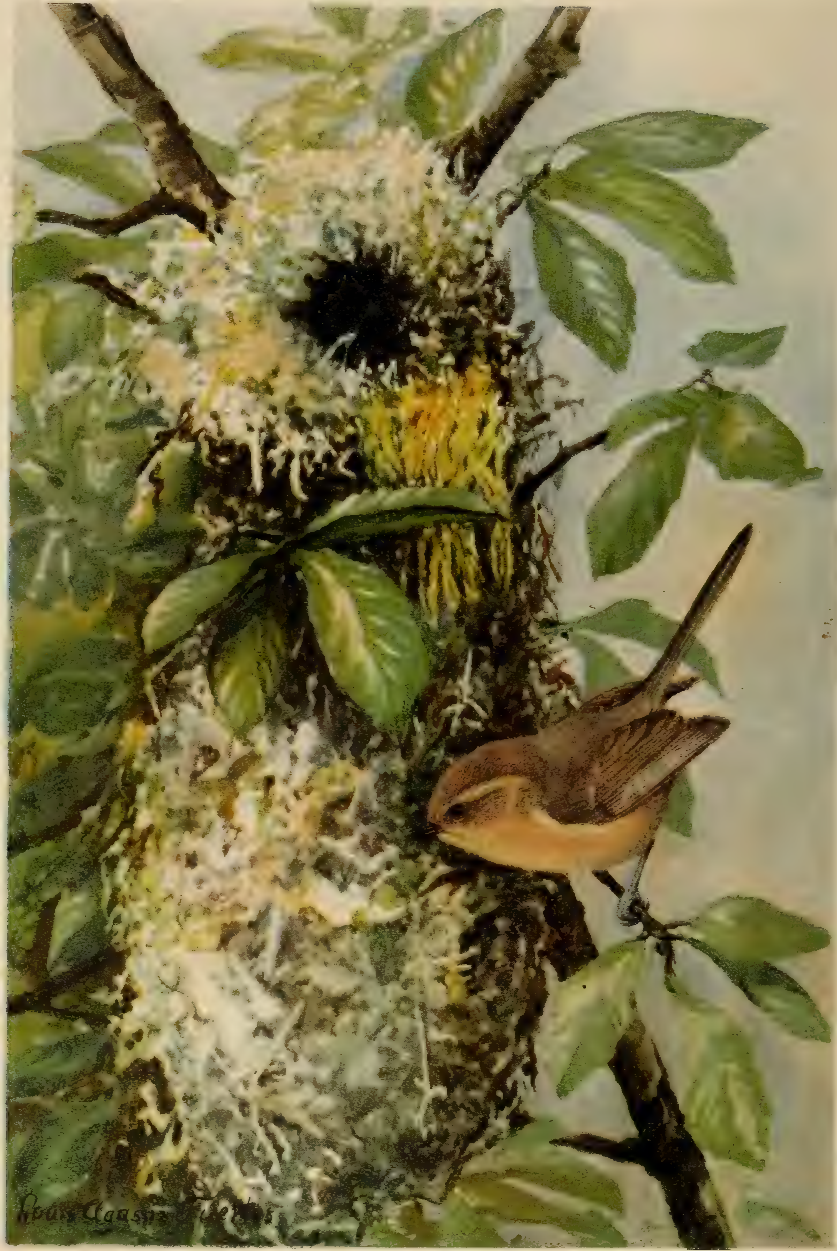
H. W. HENSHAW,

Acting Chief, Biological Survey.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CALIFORNIA BUSH-TIT (PSALTRIPARUS MINIMUS CALIFORNICUS).

Issued November 11, 1907.

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C. HART MERRIAM, *Chief*

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PART I

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Assistant, Biological Survey

WASHINGTON
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1907

LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Biological Survey,
Washington, D. C., July 27, 1907.

Sir: I have the honor to transmit herewith as Bulletin No. 30 of the Biological Survey, Part I of a report on the Birds of California in Relation to the Fruit Industry, by F. E. L. Beal. Fruit raising in California is a great and growing industry, and the relation birds bear to it is important. The investigations embodied in the present report were undertaken with a view to the accurate determination of the economic status of every species of California bird that inhabits orchards, in order that it may be possible for the fruit raiser to discriminate between friends and foes; and for the added purpose of suggesting remedial measures for the protection of fruit from destructive species. As expected, the strictly insectivorous birds prove to be almost wholly beneficial, by far the greater percentage of the insects eaten by them being injurious kinds. They are hence allies of the orchardist and their presence in and near orchards should be encouraged in every way. Of the species addicted to fruit eating, not one was found to make its diet wholly, or even chiefly, of fruit; and the fruit eaters, with possibly the exception of the house finch, are found to feed upon weed seeds and noxious insects to such an extent as to fully offset their destructive propensities.

Respectfully,

C. Hart Merriam,
Chief, Biological Survey.

Hon. James Wilson,
Secretary of Agriculture.

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BIRDS OF CALIFORNIA IN RELATION TO THE FRUIT INDUSTRY—PART I.

INTRODUCTION.

In response to numerous complaints from fruit growers concerning depredations by birds in orchards and vineyards in the Pacific coast region, investigation of the subject was undertaken by the Biological Survey several years ago. In conducting this investigation the writer spent about nineteen months in California, including the fruit seasons of 1901, 1903, and 1906, during which time he visited the most important fruit-growing regions of the State, inspected hundreds of orchards, and interviewed many fruit growers. Kindness and courtesy were everywhere met with, and every facility was extended by orchardists for the acquisition of information, even to a suspension of the customary rules with regard to trespass and shooting on private grounds. In addition to the knowledge gained by field observations, stomachs of all the species of Pacific coast birds economically valuable have been collected, examined, and their contents recorded.

When depredations are so widespread and involve so many different species of birds, a thorough knowledge of the nature and extent of the damage done and of the attending circumstances is of great importance. Next in importance is a knowledge of the conditions that obtain in fruit-growing regions where depredations by birds do not occur. This information should enable the fruit grower to adjust conditions in his own case so as to mitigate if not wholly prevent the evil.

In the following pages much stress is laid on the nature of the yearly or seasonal food of some of the more important species of birds, since it often happens that certain birds are more or less harmful to a particular crop of fruit, and yet the year through, all things considered, do more good than harm. It must not be forgotten in this connection that there are very few birds whose habits are wholly beneficial. Most of them are neither wholly beneficial nor wholly injurious. They are beneficial at some seasons and injurious at others. In some localities they are deservedly praised for benefits conferred; in others the same species are condemned for destructive habits. With the evidence all in, it is usually possible for the farmer to properly estimate the status of any given species with reference to his own farm and his own interests and to adopt measures accordingly.

It can not be too thoroughly insisted that sound public policy everywhere forbids the destruction of birds on a large scale for the purpose of protecting orchard fruits. Wholesale slaughter of birds in the supposed interest of the orchardist is fortunately rare and often proceeds from a mistaken idea of their economic relations. When it is understood that the damage by a certain species is local and exceptional, that the birds in question are on the whole beneficial and that their destruction will be a loss to the State, the farmer and the orchardist are usually willing to adopt less drastic measures in defense of their crops and to spare the birds for the sake of the general weal.

STATUS OF BIRDS IN NEWLY SETTLED REGIONS.

When a new country is settled, large areas are plowed and brought under cultivation. In the process great numbers of native shrubs, weeds, and grasses are destroyed, and various new and exotic plants and trees are substituted. Coincident with this change in the vegetable life, and as a necessary consequence of it, great changes in the conditions and distribution of animal life take place. Some species are restricted in distribution and greatly reduced in numbers, or even exterminated, while others become more abundant and more widely dispersed. The reduction in numbers may occur from actual killing by man, from the destruction of natural breeding sites through clearing, and from a diminution of food traceable to the same cause. The results are exactly the opposite when cultivation and planting afford a more abundant supply of food, greater facilities for breeding, and better protection from enemies. The natural result of such conditions is a marked increase in number of the favored species, and this increase probably explains the great devastation of crops by birds that occurred on the Atlantic seaboard soon after the first settlements, and then successively in the States to the westward as these were gradually settled.

The early days of agriculture in California offer an interesting case in point. When the native grasses and weeds of the fertile valleys were destroyed to make room for grain, many species of birds, notably blackbirds and quails, were suddenly deprived of their natural subsistence and in place of it were supplied with an abundance of new and nutritious food. Naturally they preferred the cultivated grains (wheat, barley, and oats) to the wild oats (*Avena fatua*) upon which they had largely depended. Still later, when many of the grain fields gave way to extensive orchards, which gradually crept up the hillsides and into the canyons, other species of birds began to utilize the new kinds of food and also the safe nesting sites afforded by orchard trees. Species that previously attracted little attention soon increased in numbers because of the increased food supply, additional facilities for nesting, and the protection afforded by man, who killed or drove away their natural enemies. As a result, some of them suddenly became of great economic importance, owing to their increased numbers and destructive habits.

MIGRATION OF BIRDS.

Owing to its extent and varied topography, California is rich in birds, both in species and individuals. Here altitude and topography, as well as latitude, govern climate. This fact leads to many peculiarities in distribution and complicates the study of birds in their economic and other relations. The movements of birds, too, are more complex than in the eastern part of the United States. The regular migration north in the spring and south in the fall, which is the rule over the greater part of the country, is here supplemented, in the case of many species, by a migration from the mountains, where they breed, to the valleys, where they winter. Besides the regular migrations, at times remarkable incursions of a single species take place. Such was the flight of mountain tanagers (*Piranga ludoviciana*) in the valleys in May, 1896. In several parts of California these birds appeared in immense numbers in localities where previously they had been rarely observed. Their appearance coincided nearly with the ripening of the cherry crop, to which in some places they did much damage in spite of the fact that great numbers of them were shot.

CAUSES OF DEPREDATIONS BY BIRDS.

The failure of customary food supply sometimes leads birds to forage upon crops which they do not commonly eat. This may be the explanation of the depredations of robins in the fall and winter of 1900–1901, when thousands of these birds pillaged the olive orchards in Santa Clara Valley, the region about Santa Barbara, and other parts of California. In that year it was as much as the olive growers could do to save part of their crop. Since then no case of excessive loss of olives has been reported, though occasionally some damage has been done.

The amount of damage inflicted by birds upon a crop often depends upon the surroundings. In the case of orchards in the midst of a treeless plain depredations are mostly confined to such birds as nest in them, but they may be visited and damaged by others during migration. On the other hand, fruit grown near or in brushy canyons or on wooded hills is taken by birds that live in such places; or a stream flowing through a region of orchards may harbor in the shrubbery on its banks many birds that do not live in the orchard itself.

Hence depredations by birds may arise: (1) From the settlement of a region and consequent introduction of new crops, accompanied by a diminished supply of natural food, destruction of enemies, and a general change of natural conditions; (2) from failure of the normal food supply, causing migration in search of food, or an attack upon some product which the species does not usually eat; (3) from proximity to a particular crop, in which case the bird naturally eats that which is most available.

CONDITIONS IN CALIFORNIA COMPARED WITH THOSE IN THE EASTERN STATES.

Before proceeding to a consideration of particular birds, one point should be specially noted in connection with the subject of the relation of birds to fruit in California. Those parts of the State where fruit is grown are not so well supplied with wild fruits on which birds feed as are the fruit-growing areas of the Eastern States, or even of those farther north on the Pacific coast. While California has an abundance of wild berries which serve as food for birds, they do not commonly grow near orchards and vineyards.

In the Eastern States a plentiful supply of fruit, as acceptable to birds as the best products of the orchard or garden (perhaps more acceptable), is usually present in pastures and along roadsides, so that it is only where wild fruits are exterminated by cultivation that birds are forced to eat cultivated kinds. So abundant is wild fruit in some regions, as in the United States east of the Alleghanies, that it is safe to say that thousands of bushels of blackberries and raspberries which grow wild everywhere annually fall to the ground and rot, in spite of the fact that great quantities are gathered and eaten by man as well as by birds. The same is true of blueberries (Vaccinium) and huckleberries (Gaylussacia), which are so abundant in a wild state that in their season they appear in the markets of most of the cities and large towns, and are eaten in every country home in the region where they grow. In addition to these are several species of dogwood (Cornus), holly (Ilex), cherry (Prunus), Viburnum, and many others, all of which are freely eaten by birds.

Although many of these fruit-bearing shrubs are represented in California by related species, they usually grow in the mountains remote from fruit-growing districts. In fact, the elderberry (Sambucus), the introduced pepperberry (*Schinus molle*), and an occasional mistletoe berry are the only important uncultivated fruits that appear in the stomachs of California orchard birds. On the other hand, in the Eastern States more than 40 species of wild fruits have been found in the stomachs of a single species—the Eastern robin. In the general dearth of wild fruits on the horticultural areas of the Pacific coast it is not surprising that when domestic fruits were first cultivated there the birds gave them a warm welcome, and the orchardist's crops suffered accordingly.

Another reason why birds attack fruit in California more than in the regions farther east is the dryness of the summers, juicy fruits proving an acceptable substitute for water. To secure enough water for their necessities California birds must often fly several miles, while in the Eastern States localities are few in which water can not be obtained within a few rods. In confirmation of the theory that in attacking fruit liquid for slaking thirst is sought by birds as much as food, it may be stated that much of the injury done to small juicy fruits in California, such as grapes and cherries, consists of simple punctures in the skin, through which apparently nothing but juice has been drawn.

PROTECTIVE MEASURES.

It would appear most desirable that some of the available fruit-bearing trees, the fruits of which are of little or no value to man, but which to birds are even more acceptable than cultivated kinds, should be freely introduced into California for the protection of the orchardist. That some of them would thrive there hardly admits of doubt. *Morus alba*, the Russian mulberry, is one of the best, the fruit having little value unless as food for birds. All fruit-eating species are fond of it. Both the red and the black mulberries are equally sought after, but are not often planted for birds alone. The paper mulberry (*Broussonetia papyrifera*) is hardy and is a favorite bird food. Several species of Prunus or cherry, including the choke cherry (*P. virginiana*), and especially its western form (*P. demissa*), the black cherry (*P. serotina*), and the bird cherry (*P. pennslyvanica*) are of great value in protecting fruit crops, birds almost invariably selecting their fruit in preference to the cultivated varieties. There are also several ornamental varieties of cherries, such as the European birdcherry (*P. avium*), *P. pendula* of Japan, and *P. sphærocarpa* of Brazil, which are hardy, the latter in warm regions only, and valuable as bird foods. Both the pepper tree, *Schinus molle*, and the elder, Sambucus, now abundant in California, are eaten by many birds, and both may be planted near orchards with the certainty that they will serve to protect them.

Another measure recommended for the protection of orchard fruit is a supply of water accessible to the birds. Drinking places for birds in every large orchard would tend to reduce the injury done to fruit, and would serve the added purpose of attracting insectivorous birds to the locality. Birds undoubtedly select breeding places with reference to the convenience of food and water, and a constant supply of the latter attracts to the vicinity many desirable species. The insectivorous kinds would more than pay the orchardist for his trouble in their behalf by feeding upon the insects that injure his trees; while fruit-eating species, like the linnet, being able to quench their thirst with water, would not be compelled to resort to fruit for this purpose.

The writer once observed a leaky hydrant situated between two rather extensive areas of orchards. The little pool maintained by the drip of this pipe was almost constantly surrounded by birds which all the time were coming and going, so that the number that visited it each day must have been well up in the thousands. An arrangement for this purpose need be neither elaborate nor expensive, and would serve a useful purpose.

READJUSTMENT OF CONDITIONS.

In relation to the destruction of crops by birds in a comparatively newly planted region, experience everywhere shows that after a time there is a partial readjustment of conditions, so that inroads by birds become much less common or wholly cease. On the Atlantic side of the continent at the present time, with the exception of the ravages of bobolinks in the rice fields of the southeastern coast States, few if any cases are known of the annual destruction of crops by birds, while during the first half of the nineteenth century the several species of blackbirds were a constant menace to grain. Present immunity results from the fact that increased density of population has destroyed the nesting sites and reduced the numbers of some of the most noxious birds. This readjustment of conditions is likely to take place sooner or later in all cases where the balance of nature is disturbed, but in most cases the process may be hastened by the adoption of measures like the ones above mentioned.

DAMAGES BY BIRDS GENERALLY.

Study of a number of cases of serious damage by birds leads to the conclusion that as a rule such damage is due to the concentration of a great number of birds within a limited area, usually of a single species or several closely allied ones. If the birds are seed eaters, they visit the grain fields and leave ruin and destruction in their path; if fruit lovers, they seek the orchard and play havoc with the crop. Instances of this kind are the raids of bobolinks in the rice fields of the southeastern Atlantic coast, of the blackbirds in the grain fields of the Mississippi Valley, and of the linnets in the fruit orchards of California. It is seldom that complaints are made of birds in general; one or a few species are usually the culprits, the reason for which is evident—too many individuals of the same species in one locality eating the same things. But when many species are present in normal numbers, such a variety of tastes is to be gratified that no one kind of food is unduly drawn upon.

BIRDS THAT INJURE FRUIT IN CALIFORNIA.

When a fruit grower in northern California is asked what birds are most injurious to his crops, he almost invariably mentions first the linnet, or house finch; then successively the blackbird, the oriole, the grosbeak, and the thrush. Or, if his ranch is in a narrow valley or canyon, or near wooded hills, he may place the California jay or the quail after the linnet as the next worst enemy to fruit.

The writer is pleased to be able to testify to a healthy state of feeling on the part of the great majority of California fruit growers toward the bird population. While many of them stated that they still suffered loss, none advocated measures for the extermination, or even the material decrease, of birds. The feeling seems to be practically universal that birds as a class, notwithstanding their sins, still do more good than harm. "We can't get along without the birds," was the sentiment voiced by many and really indorsed by all.

HOUSE FINCH.

(*Carpodacus mexicanus frontalis.*)

The house finch, or linnet, has been perhaps the subject of more complaint on the score of destroying fruit in California than all other species of birds together. This bird occurs on the western coast of the United States from Mexico northward to Oregon, and extends eastward to the western edge of the Mississippi Valley. Except in the mountains, it is a resident throughout most of California, but in certain parts of the northern half of the State it disappears for a few months during the winter season. In the southern half and in the warm sheltered valleys of the north it is always present. It is a hardy, vigorous species, well able to take care of itself and maintain its ground wherever it obtains a foothold. It is a prolific breeder, raising several broods in the season, and apparently has no enemy (except man) that exercises any perceptible restrictive influence upon its increase and distribution. It takes kindly to the presence of man, and utilizes his improvements for shelter and food.

DESTRUCTION OF FRUIT.

Observations in orchards show that in the fruit season the linnet is not backward in taking what it considers its share of the crop, and as it spends much of the time there, field observations alone would lead to the conclusion that fruit was its principal article of diet. Examination of the stomach contents, however, proves that such is not the case, and when we find how small is the relative percentage of fruit eaten, it seems strange that its fruit-eating proclivities should have attracted so much attention. But it must be borne in mind that the bird is wonderfully abundant, which is one of the primary conditions necessary for any species to become injurious.

Like most fringilline birds, the linnet has a strong, conical beak, with which it can cut the skin of the toughest fruit and reach the pulp. While such an instrument is very effective in attacking fruit, this is evidently not the use for which nature primarily designed it. It is customary to divide passerine birds roughly into two groups, the hard-billed and the soft-billed species, the former of which are supposed to feed on seeds while the latter subsist upon fruit and insects. From the standpoint of this classification the linnet would appear to be most emphatically a seed eater, and examination of the contents of stomachs of the species confirms the correctness of this view. Seeds of plants, mostly those of noxious weeds, constitute about seven-eighths of its food for the year, and in some months amount to much more. In view of this fact it seems strange that the house finch has acquired such a reputation for fruit eating, and it can be explained only upon the principle already laid down that in the fruit districts the bird is too numerous for the best economic interests. While each house finch eats but a small modicum of fruit, the aggregate of all that is eaten or destroyed by the species is something tremendous.

Moreover, it must be noted that not all of the fruit destroyed is eaten. Only one peck from the strong bill is necessary to break the skin of the pear, peach, or cherry, and the fruit is spoiled; the linnet by no means invariably visits the same individual fruit a second time to finish it, but often attacks a fresh one at each meal. This is proved by the large number of half-eaten fruits, either on the tree or on the ground beneath.

In large orchards, however, complaints against the linnet are fewer than formerly. Here the damage is more widely distributed and consequently less noticeable than when confined to a few trees. It is probable that the area of orcharding has increased more rapidly than the linnets, so that the proportional injury is less. At present the chief complainants are the owners of small town lots, where a few trees are grown to supply fruit for home use. As linnets are usually more numerous in villages and suburbs than in the country, trees in gardens are often entirely stripped.

INJURY TO FRUIT BUDS.

It is a little singular that formerly most of the complaints against the linnet were that it destroyed the buds and blooms of fruit trees instead of the fruit itself. Thus in 1886 Mr. R. P. Chandler, of Riverside, San Bernardino County, wrote:

> The bird which is commonly known as the linnet, or crimson house finch, has been observed to do great injury to the apricot crops of this section by feeding on the fruit buds from the time they begin to swell until the trees are in bloom. Two years ago my entire apricot crop was destroyed by the above birds, and I took the opportunity to establish the facts of the case by shooting a large number for the purpose of examination. A great many of the birds that were shot had small bits of buds, etc., stuck on their bills by the gummy substances of the fruit buds. A further examination would invariably result in finding each and every bird's stomach filled with buds.

The same year J. C. Galloway, of Tustin, Cal., stated:

> The common linnet does great injury to the buds of the apricot, eating out the center and destroying all the fruit buds on the tree in many cases, usually in January and February, in this latitude.

William Proud, of Rancho Chico, Cal., accuses the linnet of eating both buds and fruit. He says:

> The burion, house finch, or linnet, is by far the most pernicious bird we have to deal with in the orchard. He arrives in March and immediately commences his ravages on the buds of the cherry, peach, plum, persimmon, etc. The first cherry showing a red cheek is sampled by this most rapacious little bird. Then comes the fruit of the apricot, peach, and fig. For the latter he shows a decided partiality. When the fruit crop is exhausted he immediately turns his attention to all kinds of millets, sorghum, Egyptian corn, and other small seeds.

As showing how destructive the bird is to fruit, especially in small orchards, the following is quoted from Dr. T. S. Palmer, then at Berkeley, Alameda County, Cal.:

> The crimson house finch is the only bird that does any considerable damage to fruit. As soon as the cherries begin to ripen the birds keep close watch of the trees, and if the fruit is not gathered as soon as ripe they soon dispose of a large portion of it. In our garden there are about a dozen cherry trees of various kinds, and if not very closely watched, within a week or two from the time when the fruit first begins to ripen almost every tree will be completely stripped. Of course, in a large orchard the damage would not be so noticeable, but still might be considerable. Later in the season when the cherries are gone, the finches attack the plums and pears.

F. H. Holmes, of Rio Vista, Solano County, Cal., under date of September, 1886, states:

> Our worst fruit pest is the crimson house finch, which, on account of its abundance and familiarity, it is impossible to scare off. They injure mostly cherries, figs, berries, peaches, and apricots. They often only peck each fruit

> a little, and then the bees and wasps take hold and finish the work. * * * Birds that destroy the earlier fruits are generally regarded as the greater nuisance, particularly to the farmer who has not a very extensive orchard. Where fruit is handled as soon as it is in the proper condition, or for an orchard of from ten to one hundred acres or more, I have never seen these birds plentiful enough to do a great amount of damage. In some parts of the State I presume they might do more.

In regard to the habit of the linnet of eating ripe fruit, Dr. A. K. Fisher says:

> In this valley [Owens], both at Independence and Lone Pine, the species [the linnet] was found to be very destructive to the ripened peaches during the middle of August. Flocks of birds occurred in the orchards, and in some places hardly an example of the ripe fruit could be found which was not more or less mutilated. A number of birds shot in the peach orchards at Lone Pine had little except the pulp of this fruit in their gullets or stomachs. It was known as the 'peach bird.'[a]

Examination of linnet stomachs does not reveal any very considerable number of blossom buds, and it is probable that but little of the alleged mischief to fruit blossoms is done by this bird. Moreover, it may be stated that in most cases budding by birds does little, if any, damage. It is only in very rare instances that birds take all the buds from a tree, or even enough to cause considerable loss. On the contrary, buds are usually superabundant, and budding, whether by birds or by man, is frequently beneficial, relieving the trees from excessive bearing and markedly improving both size and quality of fruit.

THE LINNET NATURALLY A SEED EATER.

Before the settlement of the Pacific coast region it is evident that the linnet must have subsisted almost entirely upon the seeds of plants growing wild in the valleys and canyons. With the advent of civilization two new articles of food were presented—grain and fruit. It would seem natural for the linnet, especially equipped as the bird is to extract the kernel of seeds, to have chosen the former, as did the blackbirds, doves, and some other species; but for some reason best known to itself it selected fruit. How much the character of the food had to do with the bird's choice it is impossible to say, but it is probable that attendant conditions greatly influenced the result. Grain is grown on large, open areas, with few or no trees to afford nesting sites, while orchards offer every inducement to linnets as a permanent residence. Moreover, much of the fruit-growing section of the State is divided into small holdings, each with a dwelling with accompanying barns, sheds, and other buildings that afford ideal homes for these birds. Having thus chosen the orchard

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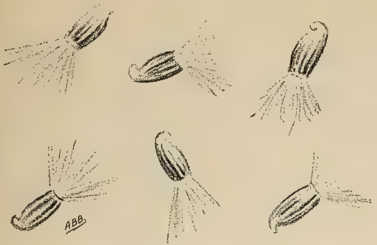
[a] North American Fauna No. 7, U. S. Dept. of Agric., p. 80, 1893.



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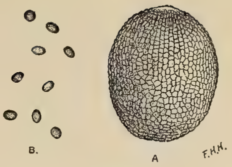

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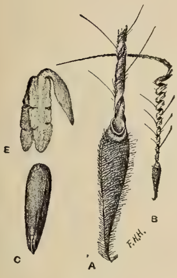

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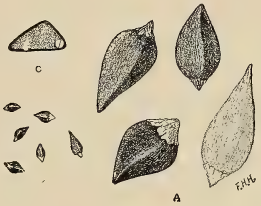

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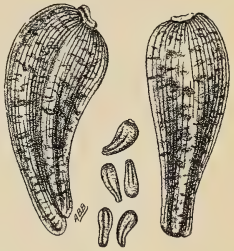

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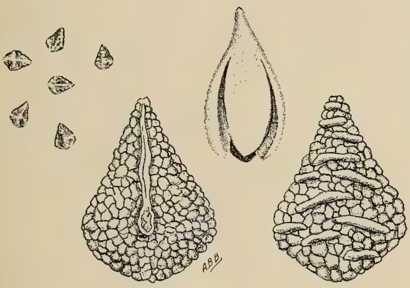

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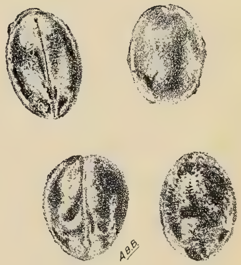

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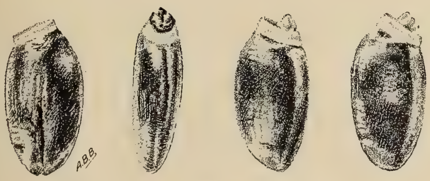

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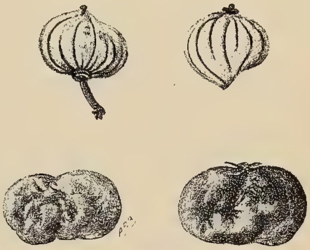

Fig. 9.

SEEDS OF COMMON WEEDS EATEN BY THE LINNET.

Fig. 1.—Napa thistle (*Centaurea melitensis*). Fig. 2.—Black mustard (*Brassica nigra*). Fig. 3.—Alfilaria (*Erodium cicutarium*). Fig. 4.—Knotweed (*Polygonum aviculare*). Fig. 5.—Tarweed (*Madia sativa*). Fig. 6.—Burweed (*Amsinckia tesselata*). Fig. 7.—Turkey mullen (*Eremocarpus setigerus*). Fig. 8.—Milk thistle (*Mariana mariniana*). Fig. 9.—Poison oak (*Rhus diversiloba*).

for its home it was only a matter of course that the bird should select as its secondary food the nearest available source of supply, namely, fruit. For seeds, which are to be regarded as the linnet's natural food, grow about the borders of orchards and by roadsides, and hence are readily obtained.

Although the great bulk of fringilline birds normally subsist principally upon seeds, at certain times, notably in the breeding season, they eat a considerable quantity of animal food, mostly insects. Moreover, their young while still in the nest are usually fed largely, and in some cases entirely, upon insects. Quite the contrary is true of the linnet. The adults eat only a small percentage of animal food, even in the breeding period, and feed their nestlings no more, perhaps less, than they eat themselves. In this respect the linnet is probably unique in its family. Such animal food as the bird does eat, however, is much to its credit. Plant-lice (Aphidæ), especially the woolly species, constitute a large portion of this part of the linnet's food; caterpillars and a few beetles make up most of the remainder.

It is, however, as a seed eater that the linnet stands supreme. Over 86 percent of its food for the year consists of weed seeds, and it is in this field, if anywhere, that the bird redeems itself from the odium of its other misdemeanors. When the immense number of linnets in California is taken into consideration, with the added fact that each one destroys several hundred seeds daily, most of which are potential weeds, it must be conceded that the bird renders a valuable service to agriculture, for the sum total of weeds so destroyed is enormous.

FOOD.

In the laboratory investigation of the food of the linnet 1,206 stomachs were examined, including 46 of nestlings. All were from California, and from points fairly well distributed over the State, with the exception of the northern quarter. The greater number were from the fruit-growing sections, so that the western coast region is better represented than the part east of the Coast Ranges. They were distributed through the year as follows:

January	88	August	118
February	35	September	123
March	186	October	108
April	80	November	25
May	74	December	54
June	167		
July	148	Total	1,206

In the first analysis of the food components the two principal elements are found to be: Animal matter, 2.4[a] percent; vegetable matter, 97.6 percent.

Animal food.—This brings into strong relief the linnet's sins of omission. Living in a country where constant war against noxious insects is necessary, the bird takes little or no part in the contest, and in return for benefits derived from man renders but slight service in this direction.

The small portion of animal food it takes, however, consists almost wholly of insects and a large proportion of it of plant-lice (Aphididæ), which from their small size do not attract the notice of many species of birds. They appear, however, to be the favorite animal food of the linnet, and it is noticeable that a large percentage of them are the woolly species. Many of the birds when killed had their beaks smeared with the remains of woolly aphides. As these insects are notoriously harmful to many trees and other plants, any bird that destroys them is a benefactor. It is to be regretted that the linnet should not indulge to a greater extent a taste so well directed. Were 25 percent of its food made up of woolly aphides the fruit it destroys would be well paid for. The other contingent of animal matter found in the linnet's stomach consists of small caterpillars and a few beetles, chiefly weevils. Most birds that feed on plant-lice eat also the ants that are usually in attendance upon them, but the only trace of ants or of other Hymenoptera in the stomachs of linnets was one ant's jaw. Grasshoppers, the favorite food of so many birds, were represented by a mere fragment in one stomach.

Vegetable food.—The most interesting part of the food of the linnet is the vegetable portion. This naturally falls into three categories: Weed seed, which amounts to 86.2 percent of the annual food; fruit, 10.5 percent; and other miscellaneous vegetable matter, 0.9 percent.

Fruit.—Fruit is represented in stomachs taken in January by a mere trace. This was probably of no value, only ungathered fruit or perhaps belated olives. In stomachs taken in February no fruit was found, but in ensuing months it appears in small quantities, increasing irregularly until August, when a maximum of 27.4 percent was eaten. In September a trifle less was taken than in August, and after that the quantity decreases until December, in which month a little less than 2 percent was eaten. In March the fruit amounted to about 6 percent, a quantity hard to account for except on the supposition that it was waste fruit left over from the previous year. The amount eaten in this month is somewhat surprising in view of the fact that in April less than 2 percent was consumed, and it is not until June that the percentage becomes important. It is possible that the supply of weed seed of the previous year may be exhausted by March, when the new crop has not yet ripened; so waste fruit is taken for want of something better.

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[a] While percentages are sometimes given in fraction, it need not be assumed that extreme accuracy is intended; such figures must be taken as only an approximation to the truth.

It is practically impossible to identify particular kinds of fruit in a bird's stomach unless characteristic seeds or stones are present. These are rarely eaten by the linnet, which seems to prefer orchard fruit. Cherries, apricots, peaches, and prunes appear to be the favorites. This choice arises, no doubt, from the character of its beak already described. While thrushes and other 'soft billed' birds prefer the smaller kinds commonly known as berries, which can be swallowed whole, the linnet attacks the larger kinds, which yield readily to its powerful beak. Linnets are particularly fond of small pears, like the Seckel, and often attack them even when they are hard, a fortnight or more before ripe. If undisturbed they will eat every one on a tree, leaving the core attached to dry and blacken in the sun.

A few strawberries and fewer blackberries or raspberries were the only cultivated small fruits that could be identified in the stomachs of linnets. A number of birds from the southern part of the State had fed freely on figs, identified by their seeds.

If the bird preferred an exclusive diet of fruit, there is no reason why its taste should not be gratified during the greater part of the year. When cherries are ripe in California linnets need eat nothing else. The cherry crop would be ample for all their wants, though perhaps not much would be left for marketing. The record, however, shows that in June, which is practically cherry month in the central part of the State, less than one-seventh of the linnet's food consists of fruit. Apricots are ripe in many parts of the State before the month closes, so that lack of fruit can not be urged as a reason why the bird should subsist so largely upon weed seed. In July apricots, peaches, and early figs are available, but still the linnet eats them only to the extent of one-fifth of its diet, and even in August and September, the months of maximum consumption, fruit constitutes only a little more than one-fourth of the food.

Weed seeds.—The greater portion of the linnet's food, as already stated, consists of the seeds of weeds, the most important of which are those of the Napa thistle, black mustard, Alfilaria, knotweed, and turkey mullen (see Pl. II, figs. 1, 2, 3, 4, 7), the total consumption of which for the year is 86.2 percent. This record is not excelled by that of any other bird studied, with the possible exception of the tree sparrow (*Spizella monticola*), whose food, however, consists largely of grass seed, much of which is useful. As there is an unaccountable increase in the fruit eaten in March, so there is an unexplained decrease in the consumption of weed seed during that month. With that exception, the amount taken in each month decreases in a fairly regular series from a maximum of 99.8 percent in January to a minimum of 64 in August. From this month the quantity of seed in the stomachs increases steadily to December, when the record ends with 97.9 percent.

It seems probable that such a constant and persistent eater of weed seed would also eat considerable grain. Stomach records show that wheat was identified in one stomach, oats in three, and something very like the skin from kernels of corn in five. In this connection it can be said that if the linnet does not eat grain it certainly is not for want of opportunity. It is evident then that weed seed is taken by the linnet simply because it likes it.

SUMMARY.

It is natural to conclude that the food most frequently found in a bird's stomach is the kind preferred. Applying this test to the linnet we find that of the total 1,206 stomachs examined, 1,133, or 94 percent of all, held weed seed, and that 807, or nearly 67 percent of the whole, contained no other food. On the other hand, fruit was found in 297 stomachs, or 24 percent of the whole number, but only 38, or 3 percent of all, were entirely filled with it. In other words, there were only 63 stomachs that did not contain weed seed, while 909 contained no fruit.

The miscellaneous portions of the linnet's vegetable food amount to only about nine-tenths of 1 percent of the food of the year, and all was found in 28 stomachs. Stamens and other parts of flowers were found in 14 stomachs only, which does not indicate that the injury to fruit buds by the linnet is serious. One stomach contained a small leaf gall. Ten stomachs held matter denominated as rubbish, consisting of bits of dead leaves, rotten wood, etc., evidently swallowed unintentionally with other food.

From the foregoing it appears that, contrary to the statements and beliefs of many, the linnet is not a constant and persistent devourer of fruit. Examination of the contents of many stomachs shows that fruit is far from being its principal article of diet, and it is probable that what is taken is eaten for the sake of variety or for the juice. A far greater quantity of fruit is eaten by the cherry bird (*Ampelis cedrorum*) and by the robin (*Merula migratoria*), both of which occur in California.

PROTECTION OF FRUIT FROM LINNETS.

In the case of both these birds, however, the greater part of the fruit eaten consists of wild species, and this fact suggests a method by which the California fruit grower may protect his orchards from the attack of the linnet—namely, by planting around orchards shrubs and trees the fruit of which will serve to attract birds away from the marketable kinds. There are many fruit-bearing shrubs and trees whose products, while worthless to man, are likely to prove more attractive to linnets than are the orchard fruits. That linnets will eat wild fruit appears from the fact that elderberries (Sambucus) were found in 49 stomachs, and their apparent partiality for cultivated fruits is readily explained by the fact that usually they are the only kinds obtainable.

FOOD OF YOUNG LINNETS.

Of the 1,206 stomachs of linnets included in this investigation, 46 were those of young birds taken from the nest. The young vary in age from birds 2 days old to those nearly ready to fly. In order to ascertain the exact difference, if any, between the food of the nestlings and that of the adults, the contents of these 46 stomachs were tabulated by themselves and the percentages of the various items of food calculated. The results show 2.4 percent of animal food to 97.6 of vegetable. The animal food consists mostly of the larvæ of a minute beetle which lives on decayed fruit, with a few plant-lice and one small fragment of a grasshopper, the only one found in any of the stomachs. The vegetable food consists entirely of weed seed, the most important of which are the following: Sunflower, bur weed, milk thistle, and poison oak. (See Pl. II, figs. 6, 8, 9.)

No fact connected with the food habits of the linnet is more surprising than this. The great body of the fringilline birds, though subsisting largely and in most cases almost entirely upon vegetable food in adult life, feed their young in the early stage of existence almost exclusively upon insects or other animal food, and begin to give them vegetable food only when nearly ready to leave the nest. It is doubtful if there is an exception to this rule so pronounced as the linnet. As calculated, the nestlings ate actually less animal food than their parents, but the difference is so small that it may be accidental.

ECONOMIC PLACE OF THE LINNET.

Admitting, as we must, that the orchardist has just grounds of complaint against the linnet on account of depredations upon fruit, the bird's claim to favorable consideration must rest upon its valuable services as a consumer of weed seed and upon its esthetic value. It is trim and pretty, has a sweet song, and in many ways is a pleasing adjunct of rural life—in fact, many Californians believe that the linnet, in spite of its sins of commission and omission, should be protected. That the complete extermination of the species, even if possible, is not desirable will be readily allowed, but that a reduction of its present numbers would be for the general welfare can not reasonably be denied. Were it possible to destroy half the linnets in the fruit-growing sections of the State, there is no doubt that most of the complaints against the species would cease. As it is, the fruit grower must protect himself by such devices as are suggested by local conditions, and bear in mind that, while as an individual he may suffer, the bird, on the whole, is doing the State good service.

LIST OF SEEDS FOUND IN STOMACHS OF LINNETS.

Following is a list of identified seeds, with the number of stomachs in which each kind was found. The same kinds of seeds were of course contained in many more stomachs, but were so finely ground up as to be unidentifiable. It is not unlikely that in identifying the seeds specifically errors have been made, but it is believed that few, if any, of the generic identifications are erroneous. A few seeds were found which have not yet been identified.

Sedge (*Carex* sp.)	21
Sorrel (*Rumex acetosella*)	3
Knotweed (*Polygonum aviculare*). (Pl. II, fig. 4)	128
Catchfly (*Silene* sp.)	51
Chickweed (*Stellaria media*)	21
Spurry (*Spergula arvensis*)	14
Amaranth (*Amarantus retroflexus* et al.)	108
Calandrinia (*Calandrinia menziesi*)	2
Miner's lettuce (*Montia perfoliata*)	11
Wild turnip (*Brassica campestris*)	13
Black mustard (*Brassica nigra*). (Pl. II, fig. 2)	83
Wild radish (*Raphanus sativus*)	108
Geranium (*Geranium dissectum*)	3
Alfilaria (*Erodium moschatum*)	392
Alfilaria (*Erodium cicutarium*). (Pl. II, fig. 3)	
Yellow sorrel (*Oxalis corniculata*)	1
Turkey mullen (*Eremocarpus setigerus*). (Pl. II, fig. 7)	117
Poison oak (*Rhus diversiloba*). (Pl. II, fig. 9)	1
Burweed (*Amsinckia tesselata*). (Pl. II, fig. 6)	3
Nightshade (*Solanum nigrum*)	4
Western ragweed (*Ambrosia psilostachya*)	3
Sunflower (*Helianthus* sp.)	5
Mayweed (*Anthemis cotula*)	1
Groundsel (*Senecio vulgaris*)	21
Lesser tarweed (*Deinandra fasciculata*)	1
Tarweed (*Madia sativa*). (Pl. II, fig. 5)	5
Milk thistle (*Mariana mariniana*). (Pl. II, fig. 8)	3
Napa thistle (*Centaurea melitensis*). (Pl. II, fig. 1)	60

The following table shows the percentages of the various items of food of the linnet for each month of the year:

Table of percentage of food of the linnet for each month in year.

Month.	Number of stomachs examined.	Animal food eaten.	Vegetable food eaten.			
			Weed seed.	Fruit.	Miscellaneous.	Total vegetable food.
		Percent.	*Percent.*	*Percent.*	*Percent.*	*Percent.*
January	88	0.0	99.8	0.2	0.0	100.0
February	35	2.9	97.1	0.0	0.0	97.1
March	186	1.0	89.5	5.8	3.6	99.0
April	80	5.8	92.5	1.7	0.0	94.2
May	74	6.3	88.9	4.8	0.0	93.7
June	167	3.9	81.6	13.4	1.2	96.1
July	148	2.2	76.5	19.7	1.5	97.8
August	118	7.1	64.0	27.4	1.5	92.9
September	123	0.1	71.6	26.7	1.6	99.9
October	108	0.0	83.5	15.6	0.9	100.0
November	25	0.0	91.7	8.3	0.0	100.0
December	54	0.0	97.8	1.8	0.4	100.0
Total	1,206					
Average		2.4	86.2	10.4	0.9	97.5

WESTERN TANAGER.

(*Piranga ludoviciana.*)

The western tanager, like the robin, occasionally becomes a nuisance in the orchard. It breeds in the mountainous regions of California and northward, and as a rule is not common in the fruit-growing sections.

DAMAGE TO CHERRY CROP.

There are, however, times during migration when it fairly swarms in some of the fruit-raising regions, and unfortunately this sometimes happens just at the time when the cherry crop is ripening. The bird is a late breeder and does not seem to care to get to its nesting ground before the last of June or early July. It is thus enabled to begin in the southern part of the State when cherries are ripening there, and leisurely follow the ripening fruit northward. The year 1896 witnessed an incursion of these tanagers, when they swarmed over much of the State and destroyed a large part of the cherry crop.

Probably the best account of this occurrence is that of W. O. Emerson (published in the Condor, Vol. V, 1903, p. 64). Mr. Emerson says:

> One of the most wonderful occurrences of the movements of birds in the season of migration which ever came under my notice, took place at Hayward during May, 1896, when countless numbers of *Piranga ludoviciana*, or Louisiana tanagers, began to make their appearance between May 12 and 14. From the 18th to the 22d they were to be seen in endless numbers, moving off through the hills and canyons to their summer breeding range in the mountains. This continued till the 28th, and by June 1 only here and there a straggling member of

> the flock was to be seen. They were first found feeding on early cherries, in an orchard situated along the steep bank of a creek, on the edge of rolling hills, well covered with a thick growth of live oaks, which faced the orchard on the east. To this thick cover they would fly, after filling themselves with cherries, and rest till it was time to eat again. This they would keep up from daylight to dark, coming and going singly all day, without any noise whatever being heard.
>
> Two men were kept busy shooting them as fast as they came into the trees which lay on the side next to the oak-covered hills. * * * After the first week, I found on going here (May 17), that dozens on dozens of the birds were lying about. * * * Tanagers lay about everywhere, and no doubt many must have flown off to die in the bushes or on the hillsides. * * * I noticed one fact of the restriction of the tanagers to the orchards along the hill edges. None were found, so to speak, in the larger orchards about the town of Hayward. * * * Mr. H. A. Gaylord, of Pasadena, Cal., in a letter under date of June 16, 1896, states that "they were seen singly from April 23 to May 1. From this date up to May 5 their numbers were greatly increased, and by May 5 there was an unusually large number of them. Then for about ten days, until May 16, the great wave of migration was at its height. Tanagers were seen everywhere, and noticed by everyone. After May 20 they decreased in numbers, and by May 26 the last ones had left the valley." * * * He also says: "The damage done to cherries in one orchard was so great that the sales of the fruit which was left, did not balance the bills for poison and ammunition. The tanagers lay all over the orchard, and were, so to speak, 'corded up' by hundreds under the trees."
>
> There must have been thousands of tanagers destroyed all through the path of their movement along the State, as they worked their way to the breeding grounds.

Here are two accounts of this great flight of tanagers—one from Pasadena, the other from Hayward, 330 miles farther north as the bird flies. The time taken by the tanagers in traversing this distance was only eight days, so it would appear that individual birds did not spend much time in the same orchard. Such sporadic flights are hard to account for. The tanagers are in California every year, and every year they migrate to their nesting grounds in spring and return in fall, but only at long intervals do they swarm in such prodigious numbers. Evidently the migration ordinarily takes place along the mountains where the birds are not noticed. It is possible that in some years the mountain region lacks the requisite food, and so the migrating birds are obliged to descend into the valleys. This would seem to be the most plausible explanation of the occurrence—that is, that the usual line of migration is along the Sierra Nevada, but some years, owing to scarcity of food, or other cause, the flight is forced farther west into the Coast Ranges, where the birds find the ripening cherries. The damage done by this species, however, is not confined exclusively to the rare occasions when they appear in such extraordinary numbers. R. H. Carr, of Redlands, southern California, wrote us in June, 1899:

> Without examining any stomachs it is easy to report the value of the Louisiana tanager to the fruit growers near here. In the city they seem to keep

almost entirely on the Grevillea trees, sipping the sweet liquid that exudes from the blossoms. But the Andrews Brothers, whose cherry and apple ranch is in the upper Yucaipe Valley, report that the tanagers destroyed about $4,000 worth of cherries, being almost the entire crop. They used powder and shot liberally, but did not save the crop.

It is to be regretted that some of the stomachs of these tanagers were not saved, in order that the diet of the species might be ascertained with precision. The only material available for examination consists of 46 stomachs from various parts of the State, during the six months from April to September, inclusive. This number is entirely too small to afford positive data as to the regular food habits of the bird, but undoubtedly points in the right direction. Although the testimony of field observers shows that this tanager eats a good deal of fruit, analysis of the stomach contents proves that over 82 percent of the food for the six months indicated above consists of insects, and the remainder, nearly 18 percent, of fruit, with a mere trace of seeds of a conifer.

Insect food.—The largest item of the animal food is Hymenoptera, most of which are wasps, with some ants. Altogether they amount to 56 percent of the food for the six months, and in August they reach 75 percent. (They reach 92 percent in April, but only one stomach was taken in that month, so the record is not reliable.) Hemiptera stand next in importance, with 8 percent. They are mostly stink-bugs, with a few cicadas. Beetles amount to 12 percent of the food, of which less than 1 percent are useful Carabidæ. The remainder are mostly click-beetles (Elateridæ) and the metallic wood-borers (Buprestidæ), two very harmful families. The former in the larval stage are commonly known as wireworms, and bore into and destroy or badly injure many plants. The Buprestids, while in the larval stage, are wood-borers of the worst description. Grasshoppers were eaten to the amount of 4 percent, and caterpillars to the extent of less than 2 percent.

Fruit.—The greater part of the fruit eaten appeared to be the pulp of some large kind like peaches or apricots. One stomach contained seeds of elderberries; another the seeds and stems of mulberries, and two the seeds of raspberries or blackberries. Nearly all these stomachs were collected in the mountains, away from extensive orchards, but still the birds had obtained some fruit, probably cultivated.

SUMMARY.

It is evident from the testimony that great damage from this species occurs only at rare intervals and during the spring migration. The greatest losses occurred in May, 1896, when the damage to the cherry crop in certain localities was most disastrous. As, under ordinary circumstances, the greater part of the food of this bird consists of insects, many of them harmful, the tanager has a fair claim to consideration at the hands of the farmer and even of the orchardist.

It is probable that means may be found to prevent, at least in part, the occasional ravages of the tanager on the cherry crop. The tanager, like the robin, prefers to swallow fruit whole, and as the latter takes small wild cherries in preference to the larger, cultivated kinds when both are equally accessible, it is probable that the tanager would do the same; and it is suggested that a number of wild cherry trees planted around California orchards might prove an economical investment for the orchardist.

SWALLOWS.

Swallows are the light cavalry of the avian army—always on the move, always on the skirmish line, ever gathering stragglers from the insect camps. They furnish another instance, and perhaps the most remarkable one, of change of habit induced by civilization. In eastern United States the bank swallow and the rough-wing are the only species that adhere persistently to their original nesting sites. In the West a third species may be added to these, the violet-green swallow; but there all the swallows are somewhat less domestic than in the East. It is probable, also, that some species, notably the barn swallow, are more abundant than when the country was unsettled, owing to the increased number of nesting sites. Supposing for a moment that the country was swept bare of buildings, where could all the barn swallows find suitable places to nest? The cliff swallows might discover enough overhanging cliffs upon which to attach their mud domiciles; the white-bellied and the martin, as formerly, might nest in the hollows of trees, but there are not caves enough east of the Mississippi River to afford nesting places for one-tenth of the barn swallows. In the far West they would fare better. When the country was first settled, barn swallows must have been confined to a few rocky cliffs and caves here and there along the seashore or in mountains. Now they live wherever man has erected a structure of any kind.

As is to be inferred from the movements of these birds, their food, with some curious exceptions, consists principally of insects caught in mid-air. For this reason all the species are migratory, except in the Tropics, for the food supply fails in regions where frosts prevail. As many insects that usually do not fly, periodically 'swarm,' they are often captured by swallows at such times in great numbers. Such is the case with ants and 'white ants' (Termitidæ), which most of the time are concealed in the earth or in logs, but at certain times 'swarm' in immense numbers. Many species of beetles that live in offal and ordinarily are not accessible to birds, in case of failure of food, migrate in great numbers, and then are preyed upon by swallows, flycatchers, and other birds. The destructive cotton boll weevil is more or less active during the late summer and early fall months, and it has been learned that the swallows, as they pass through the cotton States on their way to their southern winter quarters, catch great numbers of them on the wing and so perform an exceedingly important service. Engraver beetles (Scolytidæ) have frequently been found in the stomachs of swallows. These insects live under bark, and generally are inaccessible to birds, except woodpeckers; periodically they migrate from the tree where hatched and matured to search for fresh pastures; at such times they are unprotected and fall easy prey to any fly-catching bird. Swallows are peculiarly adapted to capturing small insects in mid-air. While their bills are weak their mouths are wide, and their long wings enable them to fly swiftly and turn quickly, so that they sweep back and forth through a swarm of insects and gather them by hundreds.

Seven species of swallows, with several subspecies, are commonly found within the limits of the United States. Their food habits vary but little. All seven species occur in California, and this number includes one, the violet-green, that does not occur in the East.

Besides the swallows whose food will be discussed in detail in the following pages, a few stomachs of the tree swallow (*Iridoprocne bicolor*), the western martin (*Progne subis hesperia*), and the bank swallow (*Riparia riparia*) have been examined, but the number is entirely too small to be used as a basis for general conclusions were it not for the fact that their contents agree in all essential points with those of the other swallows, of which a greater number were available for examination. In fact, it may be said of all the members of the swallow family that they subsist upon practically the same kind of food, with slight variation from month to month. It may be laid down as a general rule that the food of all American swallows is derived from the following orders of insects: Coleoptera, Hymenoptera, Hemiptera, and Diptera, with a few individuals from one or two other orders, and an occasional spider. So far as present investigation has shown, 90 percent of their animal food is from the four orders named above, but the relative proportion of each varies somewhat with the different species and seasons. With one notable exception[a] the swallows take so little vegetable food that it may be passed by as a negligible quantity, and much even of the little eaten is probably swallowed accidentally.

After the above statements in relation to the food of the swallows, it is perhaps unnecessary to dwell upon the great value of these birds as insect destroyers. They do not consume any product of husbandry, and the worst that can be said of them is that they eat some useful insects with the harmful ones, though the former are in a very decided minority. This statement, however, applies to any and all insect-eating birds. It would be just as reasonable to expect a mower or reaper to cut grain and leave the weeds standing as to suppose that from the hordes of insects around us birds will select only the ones that are injurious to man and leave untouched those that are beneficial. Then, too, a superabundance of any species of insects, even beneficial ones, would be a nuisance. The service which swallows render is to prey upon the whole insect tribe and so to reduce the flood of insect life to a lower level where it may be more easily dealt with by man.

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[a] The tree swallow of the East (*Iridoprocne bicolor*) during its southern migration freely eats the berries of the bay-berry (*Myrica carolinensis*).

CLIFF SWALLOW.

(*Petrochelidon lunifrons.*)

In the Eastern States the cliff swallow has practically abandoned its original nesting sites under cliffs, and now nests under the eaves of houses and other buildings. The writer has counted 80 nests beneath the eaves of 1 barn. In California the bird has taken up with the new order of things to some extent, but has not entirely abandoned its old habits. It is a migrant and remains in the State for about six months only during the breeding season, which is the time when the bird does the most good.

The following discussion of the food of the cliff swallow is based upon the examination of 123 stomachs, representing every month from April to September, inclusive.

Vegetable food.—Vegetable food to the extent of 0.32 of 1 percent was found. In most cases this was simply rubbish taken accidentally, though it includes a few small seeds.

Animal food.—Of the animal matter the largest item is Hymenoptera. These insects formed over 39 percent of the total food; most of them were bees and wasps, and small parasitic species were identified in a number of stomachs; a few were ants. Unfortunately, many parasitic insects are eaten by birds that take their prey upon the wing, such as swallows and flycatchers. The fact is to be deplored, but in most cases the percentage is not large. Perhaps the most interesting insect among Hymenoptera eaten is the common honey-bee (*Apis mellifera*). Of these, 34 were identified, all contained in 11 stomachs, in one of which were 8 individuals. All were drones—that is, males. Not a trace of a worker bee was found. In two stomachs drones constituted the whole food and in several others the principal part. It is probable that most of them were taken when the queen made her marriage flight. So far as the writer has been informed, bee keepers do not regard the destruction of drones as injurious to the swarm. In most cases drones are superabundant and instead of contributing to the food supply they are a drain upon it, so that the destruction of some of the surplus males is a positive benefit to the colony.

Hemiptera, or bugs, stand next to Hymenoptera in importance in the food of the cliff swallow. They form a little less than 27 percent of the whole diet, and are represented by eight families, namely, assassin-bugs, leaf-bugs, squash-bug family, stink-bugs, shield-bugs, tree-hoppers, leaf-hoppers, and jumping plant-lice.[a] All of these, excepting the assassin-bugs, are injurious to plants, and some of them are pests at all times. Of these, probably the leaf-hoppers (Jassidæ) are the worst. They suck the juices of plants, particularly grasses, which they infest by millions. They are said to have but few enemies, of which birds are the most effective. It is probable that they are captured by swallows when just skimming over the surface of fields, or are snatched from the tops of grass and weeds. They were found in 27 stomachs.

Leaf-bugs (Capsidæ) are a very large family of harmful insects, which feed almost entirely upon plants. Some species of this family are pests of the worst description. Leaf-bugs were contained in 43 stomachs. The other insects of this order are more or less harmful, but were not eaten so extensively.

Beetles of all kinds aggregate a little less than 19 percent. Of these, 2 percent were useful species, such as carabids and coccinellids. The others belong to 12 different families, most of which are harmful, some very much so. Among them were a number of aquatic species. These were probably captured by the swallows when flying just above the surface of the water. The principal flights of beetles do not occur during the day, but chiefly in early evening and at night.

Flies are eaten by cliff swallows to the extent of nearly 12 percent of the food. Most of these are the species commonly known as gnats, but one stomach contained a large horsefly (Tabanidæ). The gnats have a habit of swarming afternoons and evenings, when many are probably snapped up by swallows.

The remains of dragon-flies, lace-winged flies, ephemerids, and spiders make up the rest of the food, or a little more than 3 percent. As spiders do not fly, it may be asked how they were captured by the swallows. They probably were snatched from their webs or from the tops of weeds as the birds passed. Swallows pick up substances even from the ground, as is shown by the vegetable component of their food, and by other facts to be given presently.

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[a] Plant-lice and scale-insects were not present, and this may be explained from the fact that their lives are passed mostly in a wingless condition.

FOOD OF YOUNG.

Among the stomachs examined were those of 22 nestlings, varying in age from 2 days to those just ready to leave the nest. They were taken from May 30 to July 2, inclusive. In order to ascertain if important differences exist between the food of the adults and that of the young, the contents of these stomachs were tabulated separately. Comparison shows little or no difference in the quantity of vegetable matter eaten by adults and young.

The animal matter in the food of the young is precisely of the same kind as eaten by adults, but the proportions are rather different. Hymenoptera are the largest item in the food of the young as well as of the parent birds, and amount to 42 percent for the former against 39 percent for the latter. Diptera stand next in importance, with 30 percent for the young against 12 percent for the adults. As these insects are mostly soft-bodied, it is the usual custom of birds to feed a greater proportion of them to the young. Hemiptera amount to a little more than 16 percent of the nestlings' food, while the adults eat them to the extent of nearly 27 percent. Beetles are fed to the young to the amount of about 10 percent, while the parents eat them to the extent of 19 percent. This again might naturally be expected, as most beetles are hard and less easily digested than flies and some other insects, and hence are less suitable food for young birds.

From the foregoing it is evident that the food of young cliff swallows does not differ in kind from that of the adults, but is distributed among the various orders of insects in somewhat different proportions. Hymenoptera and Diptera constitute nearly three-fourths of the diet, evidently because they are soft and easily broken up and digested. Beetles and bugs appear in the stomachs less frequently. While beetles are not extensively eaten, it is worthy of note that the variety is considerable, as representatives of no fewer than 10 species were contained in the stomach of one nestling. One stomach held a few bits of eggshell, and gravel was identified in two others. One of these contained 7 good sized gravel stones; the other, pieces of glass and gravel. The supposed function of gravel in the stomachs of birds is to assist in breaking up the food. That gravel should be given young cliff swallows when not taken by the adults is remarkable. The feeding of gravel to the young has been noted in the case of other species of swallows.

WESTERN BARN SWALLOW.

(*Hirundo erythrogastra.*)

The barn swallow is rapidly learning, not only that the structures built by man afford excellent nesting sites, but that the presence of man is a sufficient protection against enemies. This species is generally distributed over the west coast region, but it is not so common as it is in the East, probably because of the relative scarcity of nesting sites. It is not improbable, however, that the end of the present half century will see the barn swallow as common throughout the whole of the region as it is in the East.

Eighty-two stomachs of barn swallows were examined, taken from April to October, inclusive, though April was represented by only two stomachs and October by one. While a greater number would have been desirable, the close resemblance of the food to that of the eastern birds, as shown by the contents of these stomachs, gives assurance that the results are reasonably reliable.

Vegetable food.—Practically no vegetable food was found in the stomachs examined. A single unknown seed was contained in a stomach taken in September.

Insect food.—So far as these 82 stomachs show, the western barn swallow subsists entirely upon insects, and it may be added that the same is true of the eastern bird.

The largest item of food is made up of Hemiptera of various families, amounting to nearly 39 percent of the whole. None of these insects was present in the two stomachs taken in April, but in every other month they constitute a large percentage of the stomach contents, and in September, when 38 stomachs were taken, they amount to 90 percent of the food for that month. Representatives of 8 families were identified, but the principal and most important ones are the leaf-bugs (Capsidæ), which were found in 44 stomachs.

Flies are next in importance, and amount to 32 percent of the food. Most of them belong to the family of the common house fly (Muscidæ), though probably there were others too badly mangled to be identified. No long-legged crane-flies (Tipulidæ), usually commonly eaten by birds, were found.

Hymenoptera constitute 18 percent of the food. Most of them consist of wasps and wild bees, but a few stomachs contained ants. One stomach had a drone honey-bee. Several birds had eaten parasitic species of Hymenoptera; a separate account was kept of these so far as possible, but the total amount summed up to only about one-fourth of 1 percent of the whole food.

Beetles aggregate nearly 10 percent of the whole, and belong to 13 families, with no preference for any. The bird probably snatches any and all beetles which it comes across. A few of the destructive engraver beetles (Scolytidæ) were found in 3 stomachs. Dragonflies and several unidentified remains constitute the remainder of the food and amount to a little more than 1 percent.

FOOD OF YOUNG.

The stomachs of two broods of nestlings of 4 each are included in the foregoing. The contents do not differ from those of adults except that they include a small percentage of gravel. Some of them contained also fragments of eggshell; one had a piece of mother-of-pearl (nacre), and one a small splinter of bone. It is curious that these indigestible substances should be so often fed to nestlings when the parent birds seldom take them.

VIOLET-GREEN SWALLOW.

(*Tachycineta thalassina lepida.*)

The violet-green swallow does not occur east of the Great Plains. Its general habits appear to be almost identical with those of its eastern relative, the white-bellied swallow.

The natural nesting site of both species was a hollow in a tree, and the western bird still adheres to the original habit and nests in the hollows of oaks and other trees, but the white-belly has to a great extent followed the example of so many of its relatives, and has taken to holes in buildings or to boxes put up for avian use.

In its food habits the violet-green exhibits no marked peculiarities; in fact it may be said that the food of the different species of swallows differs in degree rather than in kind. Stomachs of the violet-green have been collected in every month, except June, from March to September, inclusive, but only 7 were taken earlier than July. In that month, however, and the two following months 67 were obtained, a sufficient number to give a fair idea of the food at this season.

Insect food.—Insects constituted practically the entire contents of these stomachs. No spiders were found, and the only vegetable matter was a single seed, no doubt accidental.

As with the barn swallow, the largest item is Hemiptera, or bugs. These are represented by 10 different families, of which the leaf-hoppers (Jassidæ) were the most numerous, and the leaf-bugs (Capsidæ) next. Altogether they amount to 36 percent of the food.

Diptera stand next in importance, and in this respect also the violet-green resembles the barn swallow. They constitute nearly 29 percent of the food. Neither Diptera nor Hemiptera, however, are eaten as freely by the violet-green as by the barn swallow, and the deficiency is made up by Hymenoptera.

Hymenoptera amount to 23 percent of the food, and in the month of July were mostly made up of ants. Six stomachs taken on the same day and in the same locality were entirely filled with these insects. One taken at the same place on the following day was half filled with them, and this, with the exception of 1 percent contained in one stomach in August, is the whole story of ants in the food of the violet-green. All of the other hymenopterous food consists of wasps and wild bees. In explanation of the fact that this bird eats ants freely for a short time and then eats no more, it may be stated that much of the time they are not obtainable. It is only when the insects are on the wing while swarming that the swallows can catch them, and then, being very numerous, they are eaten freely.

Beetles collectively amount to something over 11 percent of the food of the violet-green. Of these nearly 3 percent are Carabidæ, with a few coccinellids and carrion beetles, which must be reckoned as useful insects. The rest, over 8 percent, are of several families, all of which are more or less harmful. Three stomachs, collected at the same time in Carmel Valley, are of interest. They contained respectively 42, 45, and 40 percent of scolytid or engraver-beetles. This was in the region of the Monterey pine (*Pinus radiata*), and there is no doubt that these insects prey upon those trees, and probably were taken when migrating in a swarm to fresh foraging grounds. A few moths, with some unidentified insects, make up the remainder of the animal food, a little more than 1 percent.

CALIFORNIA SHRIKE.

(*Lanius ludovicianus gambeli.*)

The California shrike is common in parts of the Pacific coast region. At the present time fence posts and telegraph lines are the vantage points from which shrikes ordinarily scan the ground for prey, and in certain parts of the valley region it is unusual to glance along a line of wire and not see one or more within a short distance. It does not seem that trees and shrubs could ever have adequately supplied the need for lookout stations which is now filled by the poles and wires.

There seems to be a mysterious sympathy between the shrike and the little sparrow hawk, or perhaps their relations are inspired by jealousy. The sparrow hawk also occupies the poles and wires as a lookout for prey, and whenever a hawk stations himself upon one of the poles, there, at no great distance, is sure to be a shrike keeping close watch upon the movements of the larger bird. When the latter moves the shrike follows, and seems to aim to keep the other continually in view. Perhaps the shrike sees in the hawk a rival and considers that his preserves are being trespassed upon, though one would think there was room enough and prey enough for both. No case of actual conflict between the two has been observed—only this constant and unremitting surveillance on the part of the shrike.

The shrike resembles a bird of prey in form of beak and, to a certain extent, in food habits. Unlike the true birds of prey, however, its feet are not provided with talons for seizing prey and holding it securely while it is being torn into pieces. Whenever the shrike captures game that must be torn apart it presses it firmly down into a forked branch where it can readily be dissected.

The habit of the shrike of storing food apparently for future consumption has often been noticed. When food is abundant surplus captures are hung on thorns, sharp twigs, or, in recent times, the barbs of wire fences until needed; but as such occasions seldom arise, nine-tenths of this stored food is wasted so far as the shrike is concerned. Various more or less plausible explanations of this habit have been offered, but the simplest and most natural seems to be that much of the time the bird hunts simply for the pleasure and excitement of the chase, and as prey is often captured when hunger has already been satisfied it is stored for future use. It is the same instinct and lust for slaughter that prompts man to kill game that he can not use. The habit seems to be manifested also in a somewhat different way by the crow and magpie, which store up bits of glass or bright metal for which they can have no possible use. In the case of the shrike, however, the habit is useful to man if not to the bird, for most of its prey consists of noxious creatures, the destruction of which is a decided benefit.

The diet of the shrike and that of the sparrow hawk are almost exactly alike. It is a curious illustration of two species standing far apart systematically but by special modification approaching each other in food habits. The sparrow hawk has all the equipment of a carnivorous bird, but owing to its diminutive size its attacks are necessarily confined to the smaller kinds of prey, largely insects. The shrike, on the other hand, is a member of a group almost purely insectivorous, but it is so large and strong and has a beak so modified that in addition to its ordinary diet of insects, it is able on occasions to capture and tear apart small birds and mammals. While at present the two birds subsist upon much the same diet it is evident that their food habits have been modified in different ways. The natural food of the hawk family as a whole is vertebrate animals, to which some of its members, including our little sparrow hawk, have added a large percentage of insects. The normal food of the shrike is insects, to which on occasions it adds the smaller species of vertebrates.

Like the birds of prey and some other birds, the shrike habitually disgorges the indigestible portions of its food after the nutritive part has been digested. The bones and hair of mice are rolled into compact pellets in the stomach and finally disgorged. From examination of these a very good idea of the shrike's food may be gained.

A shrike of the eastern subspecies was kept in confinement for some weeks by the Biological Survey and notes made in regard to its food habits. A thorny bush was placed in the cage, and whenever the bird was given food in excess of its immediate wants it impaled the surplus upon a thorn, taking great pains to press it securely down. On one occasion a dead mouse was placed in the cage; it was at once seized and forced into the fork of the bush and was then torn piecemeal and eaten. Note was taken of the time when the last bit was swallowed, and a close watch kept for further results. In an hour and a half the bones and hair of the mouse were disgorged in the form of a neat pellet. Everything digestible had been stripped from the bones. A May-beetle (Lachnosterna) was eaten and the pellet containing the remains appeared in an hour and twenty minutes. At another time a ground beetle (Calosoma) and a stink bug (Nezara) were eaten and their remains appeared in forty minutes. As both of the insects are nauseous, at least to human smell and taste, it is possible that they may have been unacceptable to the stomach of the bird, and so were rejected before digestion was complete. On another occasion a second Calosoma and a moth were given, and their remains were regurgitated in an hour and fifteen minutes. These experiments show how rapid is the process of avian digestion.

In the investigation of the food of the California shrike 124 stomachs were examined. They were collected in every month, but the greater number were taken in the warmer months.

Vegetable food.—Animal food of all kinds amounts to 97.5 percent, or so nearly the whole that it is fair to suppose that the greater part of the 2.5 percent of vegetable matter present was swallowed unintentionally—that is, when sticking to something else. All of it was contained in 9 stomachs. Fruit appeared in 2 stomachs, seeds in 2, and rubbish in 6. Of these probably only the fruit was taken as food. One stomach was filled with elderberries to the amount of 84 percent of the contents, the other with the seeds of blackberries or raspberries to the extent of 13 percent. It thus appears that the shrike sometimes eats fruit.

Animal food.—The animal portion of the shrike's food may be divided into three parts: Insects, 83 percent; spiders and a few snails, etc., 2 percent; vertebrates, 12 percent.

Insect food.—In comparing the food of eastern subspecies of shrike and the one under discussion, we find that more insects are eaten by the western one. The figures for the eastern bird are: Insects, 68 percent; spiders, 4 percent; vertebrates, 28 percent. The difference is undoubtedly due to climate, the western bird being able to find insects all the year round, while the eastern one discovers very few during the winter. Insects probably are always preferred when obtainable.

Of insects eaten by the shrike, the largest item is Orthoptera—that is, grasshoppers and crickets—which amount to nearly 43 percent of the whole food. They are eaten in every month of the year, and in August and September reach nearly 70 percent. These are the normal grasshopper months, the ones in which Eastern birds enjoy their annual grasshopper feast. Ordinary grasshoppers form the greater part of this item of food, but a good many crickets are eaten, especially the brown and striped so-called wood crickets. One group of these is particularly noticeable—a group of large soft-bodied monsters of the genus Stenopelmatus, many of which live under dead leaves, stones, and rubbish, and do not often voluntarily show themselves by the light of day. It seems strange that the shrike, a lover of open and sunshine, manages to discover these creatures. They are sometimes called 'sand-crickets,' and perhaps at times come out into the open, but the writer has never seen one except when dug from under rubbish. It is not known whether these insects are harmful or beneficial, so the shrike's consumption of them has no economic interest. It is quite the contrary, however, with regard to grasshoppers, for they are harmful in all stages of existence, and the shrike is directly beneficial to the farmer to the extent that it destroys them.

Beetles collectively are second in importance in the shrike's diet. They amount to 16 percent of the food, but of this about 7 percent are the useful ground beetles (Carabidæ) and carrion beetles (Silphidæ). The rest are mostly harmful. The presence of these last is a curious point in this connection. These insects are probably useful, and while no great number of them are consumed, it seems rather strange that they are eaten at all. The surroundings of these beetles are not pleasant, and they do not generally serve as food for birds except crows and other garbage hunters. Is it possible that the shrike finds them on the game which it has hung on twigs or thorns? They were noted in 8 of the 124 stomachs, and three species were identified. Most of the beetles eaten by the shrike are of the larger species, but it does not disdain small game, and quite a number of small leaf-beetles and weevils were among the others.

Ants and wasps amount to something more than 11 percent in the diet of the shrike. Naturally they are mostly eaten in the warmer months, and the wasps far outnumber the ants.

Moths and caterpillars are taken to the extent of somewhat more than 7 percent, and seem to be a regular though small component of the food. Unlike the wasps, the greater number of these were eaten in the colder months. One stomach was entirely filled with the remains of 15 moths, a most unusual occurrence, for adult Lepidoptera do not form a large element of the food of any bird yet investigated.

Bugs and flies are eaten occasionally. The stomachs taken in February contained a good percentage of Hemiptera, and so did those collected in July. In one stomach remains of robber-flies (Asilidæ) were detected. This is a family of large predaceous flies, some species of which are said to prey upon honey-bees. These two orders and a few other odd insects constituted 5 percent of the food.

Spiders and several other kindred creatures form less than 2 percent of the food, but though not eaten in great numbers they appear in a good many stomachs. In one stomach was found one of those bristly and uncanny monstrosities of the order of jointed spiders (Solpugida). It is wonderful that any bird should attack one, still more that it should eat it, as it would seem to be about as palatable as a paper of pins. The lingual ribbon, or tongue, of a snail was found in one stomach, and bits of what appeared to be the limbs of small crustaceans in several. They did not amount to a noticeable percentage.

Vertebrates.—The vertebrate part of the shrike's food amounts to a little more than 12 percent, and consists of the remains of small mammals, birds, and lizards. Mammals were found in 4 stomachs, birds in 2, and lizards in 12. Neither of the birds could be identified further than that both were small song birds. Of the mammals, one was a pocket mouse (Perognathus), one a young field mouse (Microtus), and one a shrew (Sorex). The fourth mammal could not be identified, as there was little left except hair. The lizards were not recognizable either generically or specifically, as the remains consisted only of bones and scales. From an economic standpoint, lizards are useful animals, as they subsist on insects. The same is true of birds, so that in destroying birds and lizards the shrike is doing harm. Fortunately, it does not eat many birds. The destruction of the mammals is an unmixed blessing, except, perhaps, in the case of the shrew (Sorex), which is largely insectivorous. Even if all the above vertebrates were useful the score against the shrike would not be a very heavy one and would not outweigh the value of its services in destroying grasshoppers. In the writer's field experience with the shrike only one attempt to capture a vertebrate animal was observed. In this case the shrike was seen to plunge into a thicket of weeds in pursuit of a brood of tiny quail, but a few seconds later it emerged in a great hurry, closely followed by the irate cock quail. As a matter of fact, the noxious mammals eaten both by the eastern and western shrikes far outnumber the birds, and when to the former are added harmful insects the balance is very largely on the credit side.

FOOD OF YOUNG.

No nestlings of shrikes were at hand for investigation, but the stomachs of two young just out of the nest were examined. Both were filled with beetles, ants, wasps, and crickets. In a bird so thoroughly insectivorous as the shrike it is not probable that the food of the nestlings differs essentially from that of adults.

As a feature of the landscape and as lending animation to rural scenes the shrike in California is a pronounced success, and when one sees him jauntily balancing on a telephone wire it is pleasant to reflect that in his economic relations he is as admirable as he is from the esthetic point of view.

VIREOS.

The vireos are a group of rather small tree-haunting birds of plain colors, modest habits, and sweet but unobtrusive voices. One or the other of the several species inhabits pretty much everything in the way of a tree from the monarchs of the forest down to the humblest underbrush. In thickly settled country vireos inhabit gardens, orchards, and city parks, and shade trees along the village streets. Most of them are migrants, and leave the United States in winter, but a few remain on the Pacific coast throughout the year. Their food consists largely of insects, though a little fruit and some seeds are occasionally eaten.

In the insect diet of the vireos there is one element which constitutes a bar sinister on an otherwise brilliant escutcheon. All the species investigated show a decided taste for ladybirds—that is, coccinellid beetles. No other genus of birds, nor any single species (with one possible exception), so far has been known to manifest such fondness for these useful insects. In California the destruction of ladybird beetles is perhaps a greater crime than it would be in almost any other section of the country, for here the bark scales and plant-lice upon which these beetles feed are very destructive, and every device for their extermination has been employed, even to importing several foreign species of these predatory beetles.

Time was when the devastation of the San Jose scale and several other species of scale insects threatened the fruit industry of California, and there can be no reasonable doubt that the coccinellid beetles of both the imported and native species were largely instrumental in checking the spread of these pests. It is to be remarked that these beetles are wonderfully abundant in California, probably more so than any other family. The writer found them upon corn, weeds, grass, and bushes, often where apparently there was none of their natural food. In mitigation of the vireos' habit of eating ladybirds all that can be said is that where there is such a superabundance of the insects the damage is minimized.

The writer is glad to be able to add that besides the coccinellids, vireos eat many harmful insects, among which are the black olive scale. Here, then, is an instance where the bird eats the useful beetle and also its noxious prey. As there is nothing to indicate that the bird exercises a choice between them, we must infer that it eats both whenever it finds them. It eats the beetles and the food (scales) upon which they feed. From this point of view also it must be allowed that the harm done by the vireos in eating coccinellids is offset to some extent.

WESTERN WARBLING VIREO.

(*Vireo gilvus swainsoni.*)

One hundred and ten stomachs of the warbling vireo have been examined. They were collected during the seven months from April to October, inclusive, and though hardly as many as could be desired, they probably furnish a fair idea of the food during that portion of the year.

Vegetable food.—Insects, with a few spiders, amount to over 97 percent of the diet, leaving less than 3 percent of vegetable matter, practically all of which was taken in August and September; it consisted of wild fruit (elderberries), a few seeds of poison oak, a few other seeds, and some rubbish.

Animal food.—Of the animal food the largest item is Lepidoptera; that is, caterpillars, moths, and the like. These amount to something more than 43 percent of the whole. Caterpillars make up the great bulk of this portion of the food and are a very constant and regular article of diet. Fewer are eaten in July and August and more at the beginning and end of the season. In April they amount to over 82 percent of the food of the month. Pupæ of codling moths were identified in four stomachs, and minute fragments probably of the same were found in several others. A few adult moths also were found, but the species could not be identified.

Hemiptera are the next most important item of diet, and amount to 21 percent. They consist of stink-bugs, leaf-bugs, leaf-hoppers, spittle-insects, tree-hoppers, and scales. The last were the black olive species (*Saissetia oleæ*). Coccinellid beetles, or ladybirds, were eaten to the extent of over 19 percent of the whole. None was in the stomachs taken in October, while the greater part (over 63 percent) was contained in those obtained in July. The species belong to the genera Hippodamia and Coccinella, which are larger than those of the genus Scymnus selected by the warblers. Other beetles, mostly harmful species, amount to more than 7 percent.

Hymenoptera, which are an important food of the warblers, are conspicuous by their absence in the stomach of the warbling vireo. A little more than 1 percent represents the sum total. They consist of a few ants and an occasional wasp.

A small number of flies, grasshoppers, and dragon-flies make up a little more than 3 percent of the miscellaneous insects. Spiders were eaten to somewhat less than 2 percent.

CASSIN VIREO.

(*Vireo solitarius cassini.*)

This is another of the tree foragers living in summer in orchards, canyons, and forests.

Its food consists of the same elements as that of the last-described species, but in somewhat different proportions. Forty-six stomachs were examined, taken in every month from April to November. They afford at least a fair indication of the food for those months.

Vegetable food.—The vegetable food, which was only a little more than 2 percent of the total, was made up of leaf galls, seeds of poison oak, and a few bits of rubbish. Not a trace of fruit was found.

Animal food.—The animal matter amounts to nearly 98 percent of the whole. Hemiptera are the largest item and amount to nearly 51 percent. The various families represented are those of the squash-bugs, leaf-bugs, stink-bugs, shield-bugs, leaf-hoppers, tree-hoppers, the jumping plant-lice, and scales. The latter are represented as usual by the black olive scale, which was contained in four stomachs. Caterpillars, with a few moths, are next in importance and form more than 23 percent of the whole food. They were eaten in every month and are evidently a favorite diet.

Hymenoptera are eaten much more largely by this species than by the last. They amount to over 7 percent, and are mostly wasps, with a few ants. This record, however, is likely to be modified by further investigation.

Ladybird beetles were eaten to the extent of a little less than 6 percent, which is quite reasonable as compared with the record of the warbling vireo. It is, however, much greater than that of any bird outside the present genus, except the pygmy nuthatch, and in the case of that bird the evidence is too meager to be accepted at its face value. Other beetles amount to a little more than 3 percent of the food, and are mostly weevils and small leaf-beetles (Chrysomelidæ). A few flies, grasshoppers, and other insects amount to somewhat more than 2 percent, and these, with 4 percent of spiders, make up the remainder of the animal food.

SUMMARY.

In glancing over this record of the Cassin vireo it appears that bugs are the favorite food, as shown by the numbers consumed; but caterpillars, though second in quantity, are eaten with greater regularity and appear in the food of every month. The consumption of ladybirds is very moderate for a vireo, and on the whole the bird probably does not do much harm in this way. All the other beetles are harmful, as are most of the other insects which compose the bird's food.

HUTTON VIREO.

(*Vireo huttoni.*)

This species is a resident of most parts of California west of the great interior valley. In food habits it does not differ remarkably from the foregoing, but the various elements of its food are in slightly different proportions.

Vegetable food.—Examination of 54 stomachs shows that less than 2 percent is composed of miscellaneous articles of vegetable origin. One stomach contained a few seeds of elderberries, two contained those of poison oak, and these with a few galls and some rubbish make up the whole of this part of the food. It would seem that with most of the vireos vegetable matter is taken accidentally, or possibly experimentally to see how it tastes, rather than as an approved article of diet.

Animal food.—Of the 98 percent of animal food the largest item is Hemiptera, as is the case with many of the vireos, titmice, and gnatcatchers. These insects amount to 49 percent of the food of the present species, and are represented by the following families: Assassin-bugs, leaf-bugs, stink-bugs, leaf-hoppers, tree-hoppers, jumping plant-lice, and bark scales. These last consist, as is so often the case, of the black scale, which appeared in 8 stomachs. Caterpillars, with a few moths and cocoons, are next in importance, and constitute over 22 percent of the food. These two items not only make up more than two-thirds of the diet, but are eaten with great regularity through the year and seem to be the staples of the bird's food.

Beetles, collectively, amount to nearly 11 percent. Of these 8 percent are ladybirds, somewhat more than were eaten by the Cassin vireo, but only half of the amount eaten by the Swainson vireo. The remaining beetles, less than 3 percent, were largely weevils, among which a few engravers (Scolytidæ) could be distinguished. Hymenoptera, including both wasps and ants, form about 7 percent of the food. Among them several parasitic ones were identified, but there were not enough to be of any great economic interest. A few miscellaneous and unidentified insects amount to nearly 5 percent of the food. Flies and grasshoppers make up a part of this, but they are only rarely eaten. Spiders are consumed regularly but sparingly. They amount to a little more than 2 percent.

OTHER CALIFORNIA VIREOS.

Several other species and subspecies of vireos occur in California, but in the general character of their food they agree closely with the foregoing.

BEETLES FOUND IN STOMACHS OF VIREOS.

Coccinella t. californica.
Hippodamia convergens.
Scymnus spp.
Agrilus spp.
Crepidodera helxines.
Gastroidea viridula.
Blapstinus spp.
Apion cribricollis.
Balaninus spp.
Copturodes koebelei.

WARBLERS.

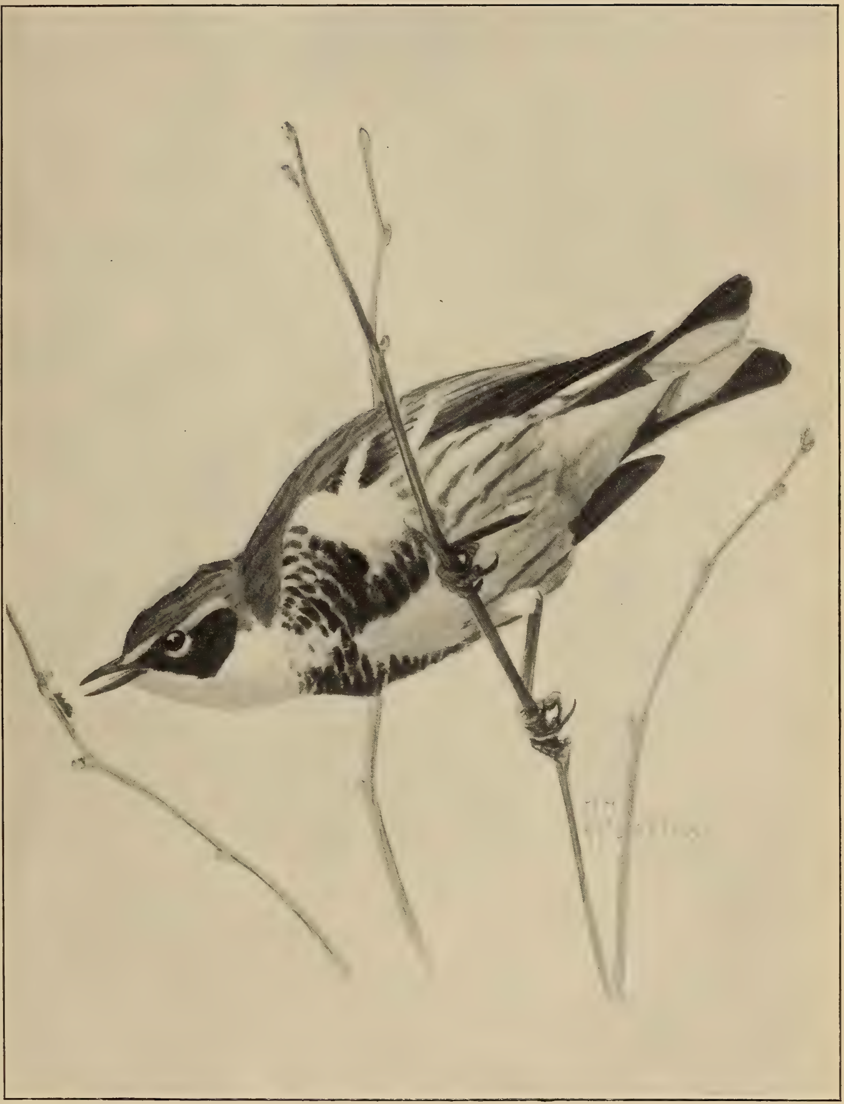
(Mniotiltidæ.)

The warblers, or more properly the wood warblers, to distinguish them from the warblers of the Old World (Sylviidæ), are a large family of rather small and often brightly colored birds. For the most part they inhabit woods and shrubbery, and while some of them obtain their food from the ground they seldom wander far from trees and bushes. The species and subspecies are so widely distributed that, excepting the deserts, there are no very extensive areas within the boundaries of the United States that do not have their complement of these interesting birds. Their food consists largely of insects, and they subsist upon species which frequent the leaves and trunks of trees. Wasps and flies (Hymenoptera and Diptera) form a large portion of their diet, and as these insects are the best of fliers a considerable portion of them are taken on the wing. The warblers probably eat more of these elusive insects than does any other family of birds except the flycatchers (Tyrannidæ) and the swallows.

Upward of 75 species and subspecies of warblers are known within the limits of the United States, and a majority of these occur in the West, though perhaps they are not so abundant individually as in the Mississippi Valley and Appalachian region.

The genus Dendroica, as the one best exhibiting the characteristic traits of the group, may be taken as the type of the family. There are about 30 species and subspecies of the genus in this country, and the ones whose food is discussed in the following pages occur in California and on the Pacific coast generally.

In a résumé of the food of the warbler family one is impressed with the general noxious character of the insects which compose it. The order of Hemiptera, commonly called bugs, contains some of the worst insect pests that afflict mankind. Moreover, from their small size and unobtrusive habits they are not eaten by many of the larger birds and are difficult to exterminate by the devices of man. But in some of their multiple forms they are preyed upon by the warblers



AUDUBON WARBLER (DENDROICA AUDUBONI).

to an average extent of more than 25 percent of the whole food. Most of the other insect food, also, is either of a noxious or neutral description, and the vegetable portion is so small that it may be disregarded. There is probably no finer tribute to the beneficial character of these birds than that of Dr. Elliot Coues, who says:

> With tireless industry do the Warblers befriend the human race; their unconscious zeal plays due part in the nice adjustment of Nature's forces, helping to bring about the balance of vegetable and insect life, without which agriculture would be in vain. They visit the orchard when the apple and pear, the peach, plum, and cherry, are in bloom, seeming to revel carelessly amid the sweet-scented and delicately-tinted blossoms, but never faltering in their good work. They peer into the crevices of the bark, scrutinize each leaf, and explore the very heart of the buds, to detect, drag forth, and destroy these tiny creatures, singly insignificant, collectively a scourge, which prey upon the hopes of the fruit-grower and which, if undisturbed, would bring his care to naught. Some Warblers flit incessantly in the terminal foliage of the tallest trees; others hug close to the scored trunks and gnarled boughs of the forest kings; some peep from the thicket, the coppice, the impenetrable mantle of shrubbery that decks tiny watercourses, playing at hide-and-seek with all comers; others more humble still descend to the ground, where they glide with pretty, mincing steps and affected turning of the head this way and that, their delicate flesh-tinted feet just stirring the layer of withered leaves with which a past season carpeted the ground.[a]

Following is a list of insects, mostly beetles, identified in the stomachs of the warblers examined. A number of these had been eaten by nearly every species:

COLEOPTERA.

Coccinella t. californica.
Scymnus pallens.
Scymnus marginicollis.
Scymnus sp. nov.
Microlipus laticeps.
Melanophthalma americana.
Aphodius rugifrons.
Diachus auratus.
Gastroidea cyanea.
Diabrotica soror.
Crepidodera helxines.
Epitrix parvula.
Bruchus pauperculus.
Blapstinus pulverulentus.
Notoxus alamedæ.
Anthicus difficilis.
Diodyrhynchus byturoides.
Apion vespertinum.
Onychobaris insidiosa.
Balaninus sp.

HEMIPTERA.

Saissetia oleæ.
Aspidiotus rapax.

AUDUBON WARBLER.

(*Dendroica auduboni.*)

(Plate III.)

The Audubon warbler is well distributed over the Pacific coast region, breeding in the mountains and descending in winter to the valleys and plains of California. It is one of the most abundant species, and may be considered as typical of the genus, especially in the matter of food. In the winter season it is a frequenter of orchards, gardens, and dooryards where it pursues its business of insect hunting with a persistent assiduity worthy of all praise. At this season it is very familiar and easily approached.

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[a] Birds of the Colorado Valley, p. 201.

In investigating the food of the Audubon warbler 383 stomachs have been examined. They were taken from July to May inclusive. Geographically they are distributed from the San Francisco Bay region southward to San Bernardino, and probably give a fair idea of the winter diet of this bird in California. The food consisted of nearly 85 percent of animal matter (insects and spiders) and a little more than 15 percent of vegetable.

Animal food.—The largest item of animal food is Hymenoptera—wasps and ants—which aggregate a little more than 26 percent of the whole. By far the greater number of these are ants, and as plant-lice also are eaten to a considerable extent, it is probable that many of the ants are species that take care of the lice. The other members of this order are mostly rapid fliers, so the inference is that they were caught on the wing. The greater number were eaten in the fall and spring months. In our record May appears as the month of least consumption—6 percent. August is the month of greatest consumption—61 percent. This record, however, probably is unreliable, as but one stomach was taken in this month. A few were identified as belonging to parasitic species.

Flies (Diptera) are represented in the stomachs of the Audubon warbler to the extent of a little more than 16 percent, or one-sixth of the whole food. This is one of the largest, if not the very largest, record of this order of insects eaten by any bird except some of the swallows. Even the so-called flycatchers do not eat so many flies as this warbler—in fact, the name ‘ wasp-catchers ’ would be much more appropriate for that family. The flies eaten by the Audubon warbler must have been caught in mid-air, for flies as a rule do not allow themselves to be captured without at least attempting to escape. These insects are so soft-bodied that it is not often possible to determine more about them than that they are Diptera. Two families were identified—Muscidæ, the family of the common house fly, and Tipulidæ, or crane-flies, the long-legged mosquito-like creatures otherwise known as “ daddy-long-legs.” Most of the Diptera, however, are the smaller species, such as gnats, which fly in swarms, and being rather sluggish are more easily captured. They are eaten with remarkable regularity during the whole season, with no decided decrease in the winter months—in fact, more were eaten in January than in either September or April. March is the month of maximum consumption, when Diptera constitute over 54 per cent of the whole food.

Bugs collectively amount to nearly 20 percent, of which a little more than 4 percent are scales and plant-lice. The black olive scale (*Saissetia oleæ*) and another species (*Aspidiotus rapax*) were found in 15 stomachs. Plant-lice (Aphididæ) were contained in 39 stomachs, and from the numbers eaten appear to be favorite food. Several stomachs were entirely filled with them, and the stomachs in which they were found contained an average of 71 percent in each. The remainder of the hemipterous food, more than 15 percent, is made up of stink bugs, leaf-hoppers, and tree-hoppers, with a considerable residue of other remains not further identified. Bugs, as a whole, are eaten rather irregularly, and the greater number are eaten in the fall months, after which the number consumed gradually decreases. Caterpillars are eaten rather regularly by the Audubon warbler, but not in great numbers. They amount to nearly 14 percent of the food of the season, though this figure includes a few moths and chrysalids. Some cocoons of tineid moths were in several stomachs.

Beetles of all kinds aggregate something more than 6 percent of the whole diet. They belong to several families, but the snout-beetles are most prominent. The others belong to about a dozen families, and, except a few carrion and ladybird beetles, are injurious. A few insects other than the above and some spiders, in all a little less than 2 percent, make up the rest of the animal food.

Vegetable food.—The vegetable food of the Audubon warbler consists of fruit, weed seed, and a few miscellaneous substances. As the bird does not visit the fruit-growing regions during the fruit season, it is not chargeable with injury to cultivated crops. Almost all the fruit eaten is wild and of no value, though in the fall it probably feeds to some extent upon various belated products of the orchard. The total of fruit for the season is less than 5 percent, of which the greater amount is eaten in the autumn and early winter, after which the quantity is unimportant.

The most prominent item of vegetable diet, however, is weed seed. This is eaten to the extent of a little more than 9 percent of the whole food, and is taken in almost every month of the bird's stay, the greater quantity in winter. Something more than 31 percent was eaten in December, 22 in January, and 31 in February, after which it decreases regularly to April. One of the most important seeds eaten by the Audubon warbler is that of the poison oak (*Rhus diversiloba* (Pl. II, fig. 9). In most cases the whole seed is not eaten by this bird, but only the waxy outer coating, which is easily identified by certain woody granules which it contains; hence the bird does not aid in the distribution of these noxious plants. The remaining vegetable food, amounting to less than 2 percent, consists principally of rubbish.

SUMMARY.

It must be evident to the most casual reader that this bird is a valuable asset in the orchard and garden. The great bulk of its food, both animal and vegetable, is composed of elements the elimination of which from the farm is a benefit. As has been elsewhere pointed out, the destruction of insects during winter or in early spring is more useful than in the height of the midsummer abundance, for in spring the progenitors of the season's broods are destroyed and with them the possibility of thousands of progeny.

MYRTLE WARBLER.

(*Dendroica coronata.*)

This is another winter visitant in California. Only 10 stomachs of this species have been examined, but the contents show the predominant food characteristic of the genus. There is one point, however, which is worthy of passing note. One of these stomachs was completely filled with greedy scales (*Aspidiotus rapax*), with the exception of a small fragment of a beetle; another contained remains of the black olive scale, and still another some scales not identified.

TOWNSEND WARBLER.

(*Dendroica townsendi.*)

The Townsend warbler, like the Audubon, summers in California only in the mountains. During the migration and in winter it visits the valleys. Like other members of the family it is an insect eater almost exclusively, and does not eat fruit or other farm products. Thirty-one stomachs were taken in the four months from October to January inclusive, in the region from Pacific Grove to Watsonville.

As our stomach examinations disclose the fact that the food of this warbler agrees closely with that of others of the same group, a fair idea of the diet for the above months is obtained.

Animal food.—The animal food consists of insects and a few spiders, and amounts to over 95 percent of the food during the time specified. Of this, bugs make up 42 percent, mostly stink-bugs (Pentatomidæ) and a few leaf-hoppers and scales. The former appear to be a favorite food. Although these insects are eaten with considerable regularity by most of the warblers of this group, they are not usually taken in great numbers, but the Townsend warbler eats many, and several stomachs were entirely filled with them.

Hymenoptera, consisting of both wasps and ants, are eaten to the extent of 25 percent of the food. Most of them are winged species. Perhaps the most striking point in the food of this bird is the great number of weevils or snout-beetles represented. They amount to over 20 percent of the food, while all other beetles form less than 1 percent. The greater number of these insects were of the species *Diodyrhynchus byturoides*, a weevil which destroys the staminate blossoms of coniferous trees. Five stomachs contained, respectively, 68, 65, 53, 50, and 35 of these beetles, or 271 in all. Moreover, each of these stomachs contained fragments which could not be satisfactorily identified; probably these were the same species, so that the total contained in the 5 stomachs is probably nearer 300. Several other stomachs contained fewer of these weevils. Representatives also of another family of snout-beetles very destructive to timber were present in a few stomachs. These were the engravers (Scolytidæ), which lay their eggs beneath the bark of trees, where they hatch, and the larvæ bore in every direction. Caterpillars and a few miscellaneous insects and some spiders make up the remainder of the animal food.

Vegetable food.—The vegetable matter, which amounts to less than 5 percent of the whole, consists of a few seeds and leaf galls. As the galls in most cases contained small larvæ it is a question if they should not be reckoned as animal food.

SUMMARY.

While this can be considered as only a preliminary study of the food of the Townsend warbler, the thoughtful reader can not fail to be impressed by the fact that this bird exhibits some very valuable economic traits, especially in its relation to the forest. The stomachs containing the pine-eating weevils were from birds killed in the pine forests of Pacific Grove, near Monterey, as also were those containing the engraver beetles. Of the 30 stomachs examined, 19 held the remains of weevils, from which it would appear that these insects are preferred as an article of food. As this group of beetles contains some of the worst pests of the forest and orchard, any bird that eats them so freely must be considered as performing a most welcome service.

SUMMER WARBLER.

(*Dendroica æstiva* subspp.)

The summer warbler, yellow warbler, or summer yellowbird, as it is variously called, is represented in the West by two subspecies, one of which visits California only as a migrant. The other, which does not differ essentially from the eastern form, is a rather common summer resident throughout the valley and foothill regions. In the East this bird is fairly domestic in its habits, and may often be seen about gardens and orchards, or in rose bushes nearer the house. In California it is not quite so familiar, but is becoming so and probably will soon acquire the habits of its eastern relative. From the material at hand this warbler appears to be even more exclusively insectivorous than the species last discussed. This may arise from the fact that it stays in the fruit districts during summer, when insects are most numerous; but it must be remembered that this is also the season when fruit and vegetable food generally are most abundant.

William Prond, of Chico, Butte County, thus recounts the efficient service of this and other warblers:

> On Rancho Chico is a fine collection of roses, all of which are more or less liable to attacks from *Aphis rosea*, but are perfectly free from other insects. I attribute this to the protection of small birds, among the most active of which are *Dendroica æstiva*, * * * *Helminthophila celata*, *Regulus calendula*.

The following statements in regard to the food of the summer warbler are based on the examination of 98 stomachs, all collected from April to October, inclusive.

Animal food.—The animal food, composed entirely of insects and a few spiders, amounts to over 97 percent. The largest item is Hymenoptera, which amounts to over 30 percent, about half of which are ants. The remainder are small bees and wasps, some of which are probably parasitic species, though none were positively identified. The insects of this order must be favorite food, as they are eaten with remarkable regularity and constitute an important percentage of the diet in every month represented. Caterpillars, with a few moths, aggregate over 18 percent. The greater number are eaten in spring and early summer, but in fall they give place to other insects.

Beetles form nearly 16 percent of the diet, and embrace about a dozen families, of which the only useful one is that of the ladybirds (Coccinellidæ), which are eaten to a small extent. The great bulk of the beetle food consists of small leaf-beetles (Chrysomelidæ), with some weevils, and several others. One stomach contained the remains of 52 specimens of *Notoxus alamedæ*, a small beetle living on trees. Bugs (Hemiptera) constitute over 19 percent of the food, and are eaten regularly every month. Most of them consist of leaf-hoppers (Jassidæ) and other active forms, but the black olive scale appeared in a number of stomachs. Plant-lice were not positively identified, but some stomachs contained a pasty mass, which was probably made up of these insects in an advanced stage of digestion.

Flies seem to be acceptable to the summer warbler; they are eaten to the extent of nearly 9 percent. Some of them are of the family of the house fly, others are long-legged tipulids, but the greater number were the smaller species commonly known as gnats. A few small soft-bodied Orthoptera (tree-crickets), a dragon-fly, and a few remains not identified, in all about 5 percent, made up the rest of the animal food.

Vegetable food.—The vegetable portion is only about $2\frac{1}{2}$ percent. Nearly all of this was fruit pulp contained in a single stomach. This, with one or two seeds and a few accidental bits of rubbish, makes up the whole vegetable contingent, which, therefore, may be dismissed without further comment.

FOOD OF NESTLINGS.

Some idea of the amount of insect food eaten by warblers may be obtained by watching the feeding of their young by the parent birds. A nest of the summer warbler containing two young, about a week old when discovered, was watched for six hours distributed over three days. The nest was situated in a prune tree in an orchard, and it is practically certain that all the food for this family was obtained in the orchard. The results of the observation appear in the following table:

Date.	Forenoon.		Afternoon.	
	Hour of observation.	Number of feedings.	Hour of observation.	Number of feedings.
June 12	....	....	3.26–4.26	21
June 14	8.21– 9.21	31	....	....
June 14	10.34–11.34	32	4.36–5.36	31
June 15	8.00– 9.00	36	1.11–2.11	30

In six hours 181 feedings were observed, an average of $30\frac{1}{6}$ per hour. As there were only two young, it follows that each nestling was fed 15 times per hour, or for a day of fourteen hours 210 times. Both parent birds took part in feeding the young, but it was noted that the female visited the nest most frequently.

SUMMARY.

From the above facts it is evident that the presence of a few warbler nests in an orchard goes far to safeguard the trees from attacks of insect enemies. The inference is plain that the presence of insectivorous birds should be encouraged by the orchardist by every means in his power. The summer warbler is, if possible, even more completely beneficial in its food habits than the Audubon warbler. Its animal food in relation to man is almost entirely noxious or neutral, and it eats so little vegetable food that its character is of but slight consequence.

WESTERN YELLOWTHROAT.

(*Geothlypis trichas* subspp.)

In California the yellowthroat is an inhabitant of marshes and low, bushy places among tules or willows. While it is an insect eater of the highest order, it does not so directly affect the interests of horticulture as it would if it frequented orchards and gardens. It may be said, however, that as the swamps and thickets in which it lives are the recruiting grounds for many orchard pests, the bird that destroys them in their native haunts is by no means without economic value.

In a somewhat restricted investigation of the food of this bird 114 stomachs, taken in every month except January, were examined.

Vegetable food.—A few seeds and bits of rubbish is the sum total of the vegetable food, and it is probable that these were taken accidentally. Some of the ants of California store up seeds, and when snapping up ants the yellowthroat probably takes the seeds along with them.

Animal matter.—The animal matter amounted to 99.8 percent of the total food. The largest item is Hymenoptera, amounting to 35 percent, of which about half is ants and the remainder wild bees, wasps, etc.

Hemiptera amount to 28 percent, and are made up of leaf-bugs, leaf-hoppers, tree-hoppers, plant-lice, scales, and probably some others not identifiable. The black olive scale was found in a few stomachs and plant-lice in one, but the other families were a pretty constant component of the food in every month.

Beetles were eaten to the extent of nearly 15 percent, and are mostly harmful species, the exception being a few coccinellids of the genus Scymnus, which, however, do not amount to 1 percent of the whole. Weevils and others of the more common families make up the rest of this portion of the diet. The three orders of insects mentioned above form the great bulk of the food of the yellowthroat, and are regularly eaten throughout the year.

Caterpillars and moths comprise 5 percent, but, so far as the stomachs at hand show, are eaten very irregularly and do not appear on the preferred list. The same may be said of Diptera, though they amount to 12 percent, but in several months none were eaten. Grasshoppers were found in only four stomachs, but one of these contained nothing else. Spiders are taken to the extent of nearly 4 percent, but in some months none were found and only a trace in others.

SUMMARY.

From the above rather brief survey of the food of the yellowthroat it is evident that the horticulturist has nothing to fear from this bird should it change its habitat and become an inhabitant of orchards and vineyards. It is practically wholly insectivorous, and the insects it eats are either harmful or of little economic value. It eats no fruit or grain, nor, so far as known, any other useful product. Like other members of the family, its life is passed in unceasing search for insects.

ORANGE-CROWNED WARBLER.

(*Helminthophila celata* subspp.)

The genus Helminthophila is next to Dendroica in the number of species and subspecies it contains, but still falls far below it. Several species occur in California, but the one under consideration is probably the most important. Only 65 stomachs were available for examination, but they confirm the evidence already obtained from other species.

Vegetable food.—Less than 9 percent of the food is vegetable matter, and is made up of 3 percent of fruit and rather more than 5 percent of various substances, such as leaf galls, seeds, and rubbish. Fruit was found in only a few stomachs, but the percentage in each was considerable; figs were the only variety identified.

Animal food.—The animal matter in these stomachs amounts to 91 percent of the food. Hemiptera are the largest item and amount to over 25 percent, mostly leaf-bugs, leaf-hoppers, plant-lice, and scales. Plant-lice were found in only one stomach and scales in 5, of which 3 contained the black olive species. Beetles amount to about 19 percent of the food, and with the exception of a few Coccinellidæ are of harmful families, among which are a number of weevils.

Beetles and bugs are the two orders of insects that are not only eaten to the greatest extent but are taken with great regularity, and form a respectable percentage of the food in every month.

Caterpillars are eaten rather irregularly, though they aggregate 24 percent for the year. Stomachs collected in several months contained none, while in others they amounted to more than half the food. Probably the examination of a greater number of stomachs would show more regularity in the consumption of these insects.

Hymenoptera amount nearly to 15 percent, and are mostly small wasps, though some ants are eaten. This is the smallest percentage for this order that has yet been found in the food of any warbler.

Flies are represented by less than 1 percent, which is unusually small. Perhaps this warbler lacks the skill to catch such agile insects. Seven percent of spiders were found in the stomachs, the largest percentage of these creatures for any warbler. This again indicates that the orange-crown is most successful in hunting sluggish game, such as beetles, bugs, and spiders.

GOLDEN PILEOLATED WARBLER.

(*Wilsonia pusilla* subspp.)

The golden pileolated warbler is another of the small birds that summer here and there on the Pacific coast, mostly in willows and other shrubbery, but not rarely in the orchard. During the migration it is common and widespread.

Fifty-two stomachs of this bird have been examined, and though the evidence is somewhat fragmentary, it suffices to reveal the general character of the food.

Animal food.—Animal matter amounts to over 93 percent, vegetable to less than 7 percent. Of the former, the larger item is Hemiptera, which aggregates over 35 percent. The black olive scale was found in four stomachs, but leaf-hoppers make up the bulk of this portion of the food. Hymenoptera stand next in importance, with 31 percent, made up of both wasps and ants.

Flies are eaten to the extent of 11 percent, and in connection with the Hymenoptera proves what observation of its habits indicate, that this bird gets much of its food when on the wing. A good many of the insects were the tipulids, or crane-flies.

Beetles of half a dozen different families were eaten to the extent of about 9 percent. They were mostly leaf-beetles (Chrysomelidæ), with a few weevils and one or two others. No coccinellids were found.

Somewhat less than 5 percent of the food consists of caterpillars. They do not appear to be favorite food, for they are eaten very irregularly. Spiders also are taken only sparingly, and form but little more than 1 percent of the total food.

Vegetable food.—The vegetable food, less than 7 percent of the total, is made up almost entirely of fruit pulp, and was eaten in the months of September and October.

SUMMARY.

The foregoing hasty review of the food of the golden pileolated warbler shows that its food habits are practically the same as those of other members of the family. The food is largely composed of insects, and its two most prominent elements are Hymenoptera and Hemiptera, which are eaten extensively and very regularly through the year. The other components of the diet apparently are taken with less regularity.

WESTERN MOCKING BIRD.

(*Mimus polyglottos leucopterus.*)

The mocking bird has always been held in such high esteem as a singer that perhaps it would be useless to attempt to add to the bird's repute by showing that its food habits are of a high order of economic interest. Moreover, the title of the mocking bird to be ranked as an economic benefactor is not quite clear, for, though it does considerable good by the destruction of harmful insects, it eats much fruit, and from the Southern States, particularly Texas and Florida, where fruit raising is an important industry, have come bitter complaints against it. In Florida the bird is said to attack grapes and oranges, and in Texas it is asserted that figs are to be added to its food list.

In California the mocking bird is a common resident only in the southern half of the State and is very common only in restricted portions. No serious complaints of the bird's depredations in this State have yet been made, but this perhaps is due to the fact that mocking birds are rare in sections where cherries and the smaller deciduous fruits are grown. Where mockers are most abundant, citrus fruits are the principal crop and the birds do not appear to molest them.

While a number of stomachs of this bird have been examined, they are too few and too unequally distributed over the region under investigation to justify final conclusions with regard to the animal food; still they furnish information of value. It so happens that 33 stomachs were taken between July 18 and August 18, and another a few days later. All but one of these stomachs were from the region about Los Angeles, and this one was collected at Fresno. The average, therefore, is a little more than one stomach a day for this period, and gives a fair idea of the food for the time and locality.

The first analysis gives 23 percent of animal matter and 77 percent of vegetable. There was no stomach which did not contain some vegetable food, while 10 had no animal matter.

Animal food.—Beetles of several families formed a little less than 1 percent. Hymenoptera, largely ants, were eaten to the extent of somewhat more than 10 percent. Grasshoppers constituted the largest item of animal food, and amounted to 11 percent of the whole. A few caterpillars and spiders made up the other 1 percent of the animal food.

Vegetable food.—Of the 77 percent of vegetable food nearly 74 percent was diagnosed as fruit. Some of this, of course, was wild, but blackberries or raspberries, grapes, and figs were found in many stomachs. Many of the birds were taken in orchards and gardens, and some were shot in the very act of pilfering blackberries. Others were taken in a wild arroyo away from cultivation. The only species of wild fruits that were identified were elderberries, which were found in a few stomachs. The other vegetable matter was made up of several elements. Of these, the seeds of poison oak (Pl. II, fig. 9) are perhaps the most conspicuous, and one stomach was entirely filled with them. A few weed seeds and some rubbish completed the vegetable part of the food.

Besides the 34 stomachs already discussed, 19 others were examined, but as they represent nine months of the year they are too few to afford a criterion of the usual food for those months; but they give a hint at least of what is eaten at other times than midsummer. Two stomachs were taken in March, one of which was filled with animal food, and the other also, except 1 percent of vegetable rubbish. The animal portion consisted of harmful insects, except one lizard. This seems peculiar food for a mocking bird, and is to be considered beneficial. The one stomach taken in May was filled with seeds of poison oak. A stomach collected in June contained 8 percent of caterpillars; small fruit, probably wild, constituted the rest of the contents. Six stomachs taken in August contained 22 percent of animal matter to 78 of vegetable. The animal food consisted of beetles, ants, and grasshoppers. The vegetable portion was made up of some wild grapelike fruit and a little fig pulp with some elderberries. Of four stomachs taken in September, one was filled with insects and spiders. The three others contained a few wasps, with fruit and other vegetable matter. The only insect to be considered useful was one carabid beetle. Of the three stomachs collected in October, one was filled with the seeds and pulp of grapes and figs; one contained 27 percent of grasshoppers and 73 percent of some wild berry not positively identified, while the third contained a few grasshopper remains and 92 percent of wild seed. The stomach collected in December was filled with seeds and pulp of figs and grapes. One stomach was taken in January which contained 70 percent of harmful insects and 30 percent of seeds of poison oak.

FOOD OF YOUNG.

Among these stomachs was one of a nestling about a week old. It contained 92 percent of grasshoppers and crickets and 8 percent of some wild fruit. So far as it goes, this indicates that mockers follow the general rule and feed their young largely on animal food of the softer kind—that is, grasshoppers instead of beetles.

SUMMARY.

Reviewing the contents of the 52 stomachs we find 29 percent of animal matter and 71 of vegetable. Of the animal food the largest item is Hymenoptera, 10 percent; and then in order, Orthoptera 7 percent, Coleoptera 6 percent, Lepidoptera 5 percent, miscellaneous 1 percent. The vegetable food consists of 50 percent of fruit and 21 percent of seeds and other items. These results prove that the mocking bird eats insects to a considerable extent, but they are not conclusive as to the elements of its preferred diet. It is evident that it is fond of fruit, and where abundant the bird may become a menace to the orchard and vineyard.

CALIFORNIA THRASHER.

(*Toxostoma rediviva.*)

Thrashers are eminently birds of the underbrush. While they occasionally alight on trees at some height from the ground, they are more frequently seen under bushes or skulking out of sight in some almost impenetrable thicket of briars. When, however, the thrasher wakes in the morning and feels his soul overflowing with song, he perches on the topmost twig of a tree and lets the world know that he is there and believes that life is worth living.

The food of the thrasher is obtained on or near the ground. The long curved bill of the California species is probably used much as many birds use their claws to dig among dead leaves and other rubbish for insects. The bird is not fastidious in its diet, and examination of the stomachs reveals a good many bits of dead leaves, rotten wood, plant stems, which are carelessly taken along with more nutritious morsels.

An examination of 82 stomachs of this species shows that vegetable food exceeds the animal in the proportion of 59 to 41. In the eastern species (*T. rufum*) the ratio is 36 to 64. This result is rather surprising, for, as a general rule, California birds eat a larger proportion of animal food than do the most nearly related eastern species.

Animal food.—As the thrasher is eminently a ground forager it would naturally be expected to find and eat many ground-living beetles. Of these the Carabidæ are the most important, owing to their predaceous habits; so a separate account of this family was kept. The result shows that they enter the food of the thrasher to the extent only of 3.8 percent, while all other beetles amount to nearly 6 percent. Of these, the darkling beetles (Tenebrionidæ) are the most numerous, and the May beetles (Scarabæidæ) next. But very few weevils or other species that live on trees or foliage were found. Of all the insects, Hymenoptera are the most abundant, as they are also the most constant element of the thrasher's food. About half of these are ants, the rest wasps and bees. Ants naturally are the insects most often found by this bird, as many species live on the ground and among rubbish and rotten wood. The occurrence in the food of wasps and bees, on the contrary, is somewhat of a surprise, as they are mostly sun-loving insects more often found on flowers or the leaves of trees than under bushes or thickets where the thrasher delights to forage. Together they make up something more than 12 percent of the food of the year. Two specimens of worker honey-bees (*Apis mellifera*) were found in one stomach. None of the other Hymenoptera was of specially useful species.

Caterpillars, cocoons, and moths amount to a little more than 8 percent of the food, and the greater number were eaten during the winter months. It is probable that they were hibernating and were raked out from under dead leaves or other rubbish. A few bugs, flies, grasshoppers, and spiders make up the rest of the animal food—about 6 percent. Spiders and myriapods amount to a little more than 6 percent.

Vegetable food.—The vegetable food may be divided into three parts: Fruit, poison-oak seeds, and miscellaneous vegetable matter. Fruit represents nearly 18 percent, but it probably is not of much value. Several stomachs contained pulp that could not be identified with certainty, and might have been that of some cultivated variety. Seeds of Rubus fruits (blackberries or raspberries) were found in 12 stomachs out of the 82. These, however, are as likely to have been wild as cultivated. Elderberry seeds were discovered in 10 stomachs, Cascara, or coffee berries (*Rhamnus californicus*), in 5, and manzanita berries in 1. The seed of poison oak (*Rhus diversiloba*, Pl. II, fig. 9), and a few of the nonpoisonous species of Rhus were eaten to the extent of 14 percent of the food. They were not found in many stomachs, but appear to be eaten in considerable quantities when eaten at all. The thrasher must be added to the list of birds that assist in the dissemination of the seeds of this noxious plant.

The miscellaneous part of the vegetable food amounts to over 26 percent, and is made up of mast, weed seed, galls, and rubbish. The mast was not further identifiable. Most of the seeds were so broken and ground up that only a few species were identified. Two stomachs contained remains of grain—wheat in one and corn in the other. Leaf galls were found in several stomachs, and rubbish in quite a number, though here again it is difficult to draw the line between food proper and stuff that is accidentally picked up with it.

SUMMARY.

Although the thrashers eat some fruit, most of it is wild and of no value. Moreover, the bird's habits are such as to preclude the likelihood that it will ever become a resident of orchards. Grain evidently is not a favorite food, and if it were it is doubtful if the bird would leave its chosen haunts for the sake of procuring it. It is not probable that the California thrasher will ever become of special economic interest unless under very exceptional circumstances. In the meantime it performs its part in the great work of reducing the vast numbers of insects.

WRENS.

Since the time to which history runneth not the wren family, represented by one or other of its members, has attached itself to the abodes of man. Wherever man settles some member of this group is ready to greet him, to take advantage of his improvements, and to aid in the fight against his insect enemies. The common wren of Europe and the house wren of eastern North America habitually choose crannies in buildings or fences for nesting places, or if hollow trees are selected they usually are near human dwellings, preferably fruit trees in orchards or gardens. When civilization was pushed to the Pacific coast, wrens were there ready to welcome the new order of things. In food habits the wrens proper (Troglodytinæ) are largely insectivorous. While occasionally they eat a seed or a bit of fruit, the quantity taken by most species during the year is so small in comparison to the animal portion as to be insignificant. The insects eaten by the wrens are mostly noxious species, such as infest the foliage and branches of trees and shrubs, and the domestic habits of the wrens enable them to attack these pests in the very places where they are most harmful—that is, in the garden and orchard. The predaceous beetles (Carabidæ), which live mostly on the ground, are protected from the wrens by this very habit, as the latter seldom forages in such places. Moreover, the species most valuable to man are rather large prey for such small birds.

BEWICK WREN.

(*Thryomanes bewicki* subspp.)

The Bewick wren is one of the species which to a considerable extent occupies in California the place of the house wren in the Eastern States. The nesting habits of the two are practically identical, and the economic value of the former is just as great as that of the latter.

Investigation of this bird's food is based upon the examination of 146 stomachs taken in every month of the year. Of its diet for the year a little more than 97 percent consists of insects and less than 3 percent of vegetable matter.

Vegetable food.—The largest quantity of vegetable matter was eaten in December and January and formed about 12 percent of the food in each of these months. In three months—March, June, and September—no vegetable food was found in the stomachs. It is hardly probable, however, that such would always be the case in these months. What was supposed to be pulp of fruit was found in one stomach. This was the only vegetable substance noted that could possibly be useful to man. Six stomachs contained seeds more or less broken, of which only one was identified, a single seed of turkey mullen (*Eremocarpus setigerus*). In one stomach was a small gall, and in six were various substances, such as bits of dead leaves, plant stems, and rotten wood, which may properly be denominated rubbish.

Animal food.—Of the animal food various families of bugs (Hemiptera) make up the largest percentage. One of the most interesting items is the black olive scale, which was found in a number of stomachs but does not appear to be eaten extensively. The great bulk of the hemipterous food was made up of leaf-bugs, stink-bugs, shield-bugs, leaf-hoppers, tree-hoppers, and jumping plant-lice, though there were representatives of other families. The aggregate of the Hemiptera eaten is about 31 percent of the total food. It is distributed with great regularity through the year and varies less from month to month than any other food. With the exception of the olive scale no specially harmful species was identified, but bugs belonging to the same family as the notorious chinch bug were found. As a vast majority of the members of this order are injurious to vegetation their destruction by birds must be considered beneficial.

Beetles collectively amount to over 21 percent of the food. They may be placed in three groups—ladybirds, weevils, and other beetles. Ladybirds are probably the most useful insects of the whole order of Coleoptera, so that their destruction by birds is to be deplored. Bewick's wren eats them to the extent of a little more than 3 percent of the whole food. This is not a large percentage, though greater than could be wished. On the other hand, the bird eats weevils, or snout-beetles, to the extent of nearly 10 percent of its food. As all the members of this group (Rhynchophora) are practically harmful, and some of them the worst pests of the orchard and forest, it must be allowed that we are paid for our ladybirds at a fairly good price. A number of stomachs contained beetles of this group belonging to the family of engravers (Scolytidæ), which live under the bark of trees and greatly damage the timber. The stomachs of two wrens taken in Pacific Grove in the month of January contained 85 and 80 percent of these beetles.

The owners of the Pacific Grove pine forests have engaged the services of an expert to investigate the damage being done to the pines by scolytids and other insects, and, if possible, to devise a remedy. Is it not evident that the bird under consideration is one of Nature's remedies for this evil? The trouble is that there are not enough birds to wage effective war against the insects. In many cases, perhaps in this one, man himself is partly to blame for present conditions. The birds are destroyed—destruction of the forest follows. By furnishing proper facilities for breeding in the shape of bird boxes the numbers of this wren in the State of California may be greatly increased and the forest trees correspondingly protected from insects.

Other beetles, mostly leaf-beetles (Chrysomelidæ) were eaten to the extent of a little more than 8 percent. While nearly all of the leaf-beetles are theoretically harmful none of those identified in the food are especially destructive to crops.

Hymenoptera, including both ants and wasps, aggregate a little more than 17 percent of the wren's diet. They are a fairly constant constituent of the food and do not appear to vary much according to season. The greater number was found in March, but as only two stomachs were collected in this month the record is not conclusive. Ants form about 7 percent of the food. The economic relations of these insects have been discussed elsewhere. Wasps make up the rest of the item, about 10 percent, and have no especial economic significance. Caterpillars and a few moths and some cocoons constitute a little less than 12 percent of the wren's food. Contrary to what might be expected, not all these are taken in summer. The 14 stomachs obtained in February contained caterpillars to the amount of over 13 percent of their contents. They were probably found hibernating in crevices of bark. A few moths were eaten, but, as usual, they were only a small item of the food. Small cocoons of tineid moths were found in a number of stomachs.

Grasshoppers amount to 4 percent of the wren's diet. Most of them are eaten during the summer and fall, though some appeared in stomachs taken in January. While these insects are a favorite food for many birds they are probably rather large and too terrestrial in habits to be eaten in great numbers by wrens. Other insects, mostly flies and a few remains which could not be identified, make up about 6 percent of the stomachs' contents. Flies (Diptera) are eaten very irregularly and appear not to be relished. Spiders are taken to the extent of somewhat more than 5 percent of the total food. As spiders live about trees, bushes, fences, rocks, and outbuildings it is not surprising that they are captured by wrens, but the rule seems to be that while all insectivorous birds eat spiders to some extent no species eats many.

List of insects found in stomachs of Bewick wren:

COLEOPTERA.

Cercyon fulvipenne.
Hippodamia convergens.
Cocinella t. californica.
Scymnus marginicollis.
Aphodius rugifrons.
Microrhopala montana.
Diachus auratus.
Crepidodera helxines.
Epitrix parvula.
Exema conspersa.
Diabrotica soror.
Cryptocephalus castaneus.
Gastroidea sp.
Bruchus seminulum.
Blapstinus dilatatus.
Notoxus alamedæ.
Ceutorhynchus nodipennis.
Pelenomus cavifrons.
Apion sp.

HEMIPTERA.

Sinea diadema.
Saissetia oleæ.

Remains of insects belonging to the following families were found, but not further identified:

COLEOPTERA.

Carabidæ.
Hydrophilidæ.
Staphylinidæ.
Coccinellidæ.
Elateridæ.
Scarabæidæ.
Chrysomelidæ.
Bruchidæ.
Tenebrionidæ.
Anthicidæ.
Curculionidæ.
Scolytidæ.
Other Rhynchophora.

DIPTERA.

Muscidæ.
Tipulidæ.

HEMIPTERA.

Emesidæ.
Reduviidæ.
Aradidæ.
Capsidæ.
Lygæidæ.
Pentatomidæ.
Corimelænidæ.
Scutelleridæ.
Jassidæ.
Membracidæ.
Psyllidæ.
Coccidæ.

WESTERN HOUSE WREN.

(*Troglodytes aedon* subspp.)

The western house wren, like its eastern relative, is a common resident about outbuildings and other structures that offer suitable nesting sites and good foraging ground. In its general appearance and habits it is so like the Bewick wren that the casual observer is likely to confuse the two. Like other members of the family, it is largely insectivorous and rarely eats vegetable food.

Only 36 stomachs of this species from California are available for examination, but the character of the food agrees so nearly with that of the eastern form that the general results obtained from the study of that subspecies may be applied to the western bird.

Animal food.—In the 36 stomachs examined animal matter, consisting entirely of insects and spiders, formed 97.5 percent, and vegetable food 2.5 percent. Beetles, as a whole, amount to about 20 percent; caterpillars, aggregating 24 percent, are taken in the earlier months of the year; and Hemiptera, amounting to 33 percent, are eaten chiefly in the last of the season. Grasshoppers amount to about 5 percent, and different insects, mostly ants and other Hymenoptera, aggregate 15 per cent.

Vegetable food.—The vegetable matter consists of rubbish and one grass seed, probably all of it swallowed accidentally.

Among the 36 stomachs, of which the record has just been given, were 18 nestlings, some being about a week old, others about ready to leave the nest. The results of the examination of these were tabulated by themselves in order to determine the differences, if any, between the food of the adults and that of the young. No vegetable matter was found in any of the stomachs, and the animal food was distributed among a comparatively few elements. Bugs (Hemiptera) are the largest item, and amount to nearly 36 percent. Caterpillars and grasshoppers stand next, with 17 and 16 percent, respectively.

It is interesting to note that about three times as many grasshoppers are fed to the young as are eaten by the adults. Wasps and ants amount to a little more than 6 percent, and are the smallest item. Spiders appear to the extent of a little over 11 percent. Beetles, however, constitute the most interesting item of the food. They were eaten to an average extent of somewhat more than 11 percent, and were nearly all ladybirds (Coccinellidæ) contained in the stomachs of five individuals of a brood of six. The amount in each stomach varied from 15 to 65 percent of the contents, and averaged 29 percent of each of the six birds. It is a question which is the more surprising, that this brood had eaten so many coccinellids, or that the others had eaten so few. Only three other stomachs contained any of these beetles and those were all adults. The house wren does not exhibit any special proclivities for ladybirds, and it would seem probable that in this case either other food was wanting or these beetles were specially abundant.

In addition to the examination of stomachs, observations were made upon the feeding of nestling wrens. A nest situated in the porch of the house of Mr. W. O. Emerson, at Haywards, Cal., was observed for one-hour periods from soon after the young were hatched until they were nearly ready to fly. The nest was watched at various times of day, so as to include as nearly as possible all hours of daylight. During the first two periods the male aided in feeding the young, but afterwards was not seen, and the whole care of the young devolved upon the mother. The number of young probably was not fewer than six. Following are the results in tabular form:

Date.	Forenoon.		Afternoon.	
	Hour of observation.	Number of feedings.	Hour of observation.	Number of feedings.
May 18	10.00–11.00	8	4.00–5.00	7
May 19	9.35–10.35	13	4.30–5.30	10
May 20	10.29–11.29	16		
May 21	8.23– 9.23	20	2.01–3.01	12
May 23	8.22– 9.22	19		
May 26	10.35–11.35	32		
May 27			2.36–3.36	31
May 28	8.20– 9.20	38		
May 30	10.40–11.40	28		

As will be noticed, the whole time of observation covered a period of thirteen days, although the nest was not watched every day. In all the nest was watched for twelve hours, and the total number of times that food was brought to the young was 234, or an average of 19½ times per hour. The young were fed as early as 5 o'clock in the morning and as late as 7 in the evening, thus making for the parent birds a working day of fourteen hours. Only a little plain arithmetic is necessary to show very nearly the number of insects destroyed by this family in a single day.

These observations were made with watch in hand and the time of each feeding noted. In many cases the parent bird was away in search of food only half a minute. Once there was a heavy mist nearly all day, when the mother wren was hard pressed to find food for the ever-gaping mouths of her young. No flying insects were abroad, and the supply of caterpillars from the immediate vicinity had been exhausted. In this extremity the mother turned her attention to spiders and was seen to visit the interior of a summer house, also to investigate a pile of flower pots and tubs and to plunge into and under an evergreen hedge in search of something that would answer for food. As the nest was watched at very short range, it was often possible to determine the nature of the food brought by the parent. When the nestlings were very young, it consisted almost entirely of small green caterpillars, commonly called 'canker-worms.' Later this was varied by tipulid flies (daddy-long-legs), small moths, and spiders. Some of the insects brought were not determinable, probably flies and wasps.

SUMMARY.

From the above sketch of the food of the house wren it will be seen that there is practically only one item to which exception can be taken, namely, the coccinellid beetles, or ladybugs. But the record is so meager that it is not safe to draw general conclusions. It is probable that a more extensive investigation of the food of the California bird will show that it is entitled to the same high economic rank as its eastern relative.

WESTERN MARSH WREN.

(*Telmatodytes palustris* subspp.)

The marsh wren, as its name indicates, is a resident of swamps and marshy grounds. At first thought its food might not appear to be of any economic importance, but investigation shows that it does not differ from that of the orchard wrens as much as one might infer from difference of habitat. Only 53 stomachs of this species have been obtained for examination. While this number is not sufficient as a basis for final judgment, it suffices to show how closely the food of this species resembles that of its congeners.

Vegetable food.—But little vegetable food was found in the stomach of the marsh wren, and the precise value of most of that was not determinable. A few seeds of sedge and one of amaranth were all that were identified. The total amount was a trifle over 2 percent.

Animal food.—Beetles, wasps, ants, bugs, caterpillars, and a few miscellaneous insects, with some spiders and snails, make up the bill of fare. As with the Bewick and the house wren, bugs are the largest item, but do not quite equal the quantity eaten by those industrious bug-hunters. While the Bewick eats these insects to the extent of 31 percent of its food, the marsh wren eats them only to the amount of 29 percent. In this respect there seems to be little difference between the bird that gets its food from trees and the one that feeds among the tules and sedges. The families represented are those of the assassin-bugs, damsel-bugs, leaf-bugs, stink-bugs, leaf-hoppers, and tree-hoppers, most of which are usually found on trees—in fact, one is forced to the conclusion that the marsh wren must at times forage upon trees or shrubs. Scales were found in one stomach, which is another point of resemblance between the diet of this bird and that of the habitual tree inhabiters.

In the marsh wren's food caterpillars and chrysalids rank next to bugs in importance. They amount to about 17 percent of the whole, and appear in the food of every month. Cocoons of tineid moths were contained in a number of stomachs, another indication that the birds visit trees.

Beetles constitute 16 percent of the food. While a number of the commoner families are represented, the terrestrial forms are rather more prominent than in the food of the arboreal wrens. A few carabids and a number of coccinellids together make up 2 percent of the food, and were the only useful insects eaten, unless the assassin-bugs are reckoned as such. As these feed on other insects they must of course do some good. Ants and wasps amount to about 8 percent of the food, and most of them were eaten during the fall months. Flies, grasshoppers, dragon-flies, and a few insect remains not further identified make up over 11 percent of the food. They were eaten very irregularly. Spiders constitute somewhat more than 5 percent, and, as usual, are very regularly eaten, but in small numbers. Small mollusks (snails) were eaten by quite a number of birds, and 1 stomach contained 11 specimens.

SUMMARY.

This brief review of the food of the marsh wren, while not absolutely conclusive, is sufficiently near the truth to prove that the bird is to be ranked among our eminently useful species. Of some birds it has been said that their peculiar merit lies in the fact that they reside in orchards and cultivated ground and hence destroy insect pests in the very places where their mischief is done. This can not be asserted of the marsh wren, but it must be remembered that many harmful species of insects breed and live in marshes and waste places as well as in grainfields and orchards, so that the birds which destroy them on wild lands are removing the source of supply from which are recruited the hosts that infest the farm.

CACTUS WREN.

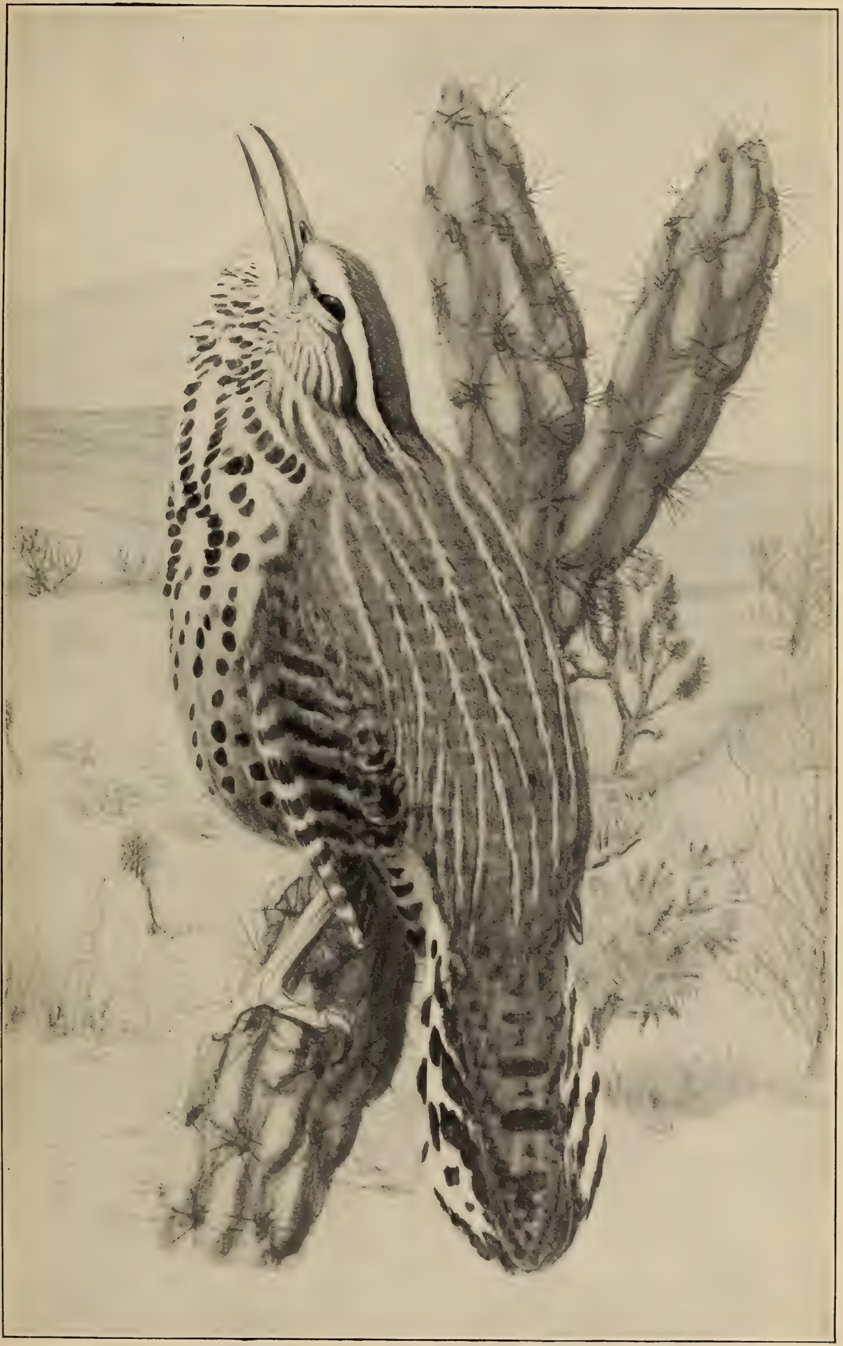
(*Heleodytes brunneicapillus.*)

(Pl. IV.)

The cactus wren is so exclusively a bird of the desert and waste places that its food may be thought to have little, if any, economic interest. It is not safe to assume, however, that the bird will never affect the interests of agriculture because it does not do so at present. Moreover, its food habits have a scientific interest which justifies a brief review. A number of the birds whose stomachs have been examined for this work were taken near orchards and grainfields, and there can be little doubt that, with the spread of cultivation, the species will adapt itself to a somewhat different environment and become of economic importance. We find, in fact, that its food is made up of practically the same orders and families of insects that compose the diet of birds living on agricultural lands, but the relative proportions differ widely, and in most cases the species are probably different.

Only 41 stomachs of the cactus wren were available for examination. They were taken in the region from Los Angeles to San Bernardino, and from July to January, inclusive. They contained about 83 percent of animal matter to 17 of vegetable.

Animal food.—Beetles and Hymenoptera, the latter ants and wasps, were the two most important items of the animal food. Each made up about 27 percent of the total. The beetles belong to several families, but weevils, or snout-beetles, were the most noticeable, and amount to somewhat more than 10 percent. One stomach contained 11 of these insects and another 10, while others held fewer. Only one species, *Rhigopsis effracta*, was identified. Five of these were in 1 stomach. The other beetles belong to more common families. Coccinellids were found in 1 stomach and carrion beetles in 2. They were the only insects noted that can be considered as useful. Hymenoptera are represented by many ants and a few wasps. These are just the insects which the cactus wren might be expected to find, for dry land and sunshine are the conditions which favor these creatures. Grasshoppers amount to a little more than 15 percent. This



CACTUS WREN (HELEODYTES BRUNNEICAPILLUS COUESI).

is the only wren that eats these insects to any considerable extent except as nestlings.

Bugs (Hemiptera) amount to only a little more than 5 percent of the food, which is the smallest quantity eaten by any of the wren family. This item, however, contains one unexpected element—that is, black scales (Saissetia). These appeared in 6 stomachs, and must have been obtained from trees or shrubs, possibly from fruit trees. In any case their destruction is a welcome service. Caterpillars and their allies (Lepidoptera) were eaten to the extent of a little more than 5 percent. Among them were many cocoons of tineid moths, indicating again that the cactus wren obtains some of its food from trees and shrubs. A few unidentifiable insects and spiders amount to somewhat more than 3 percent. This is the smallest record for spiders of any of the wren family, which is much given to eating these creatures, finding them in crannies in rocks, stumps, and other places. A few of the long bones of a tree frog were found in 1 stomach.

Vegetable food.—Seventeen percent of vegetable matter was found in the stomachs of this bird. This is the largest percentage found in the stomachs of any species of wren yet examined. The vegetable food of the cactus wren consists of fruit pulp and weed seeds. The former amounts to nearly 13 percent, but in all cases where identification was possible consisted of wild species. Of these, only 3 were fully identified—cactus (Opuntia), elderberry (Sambucus), and Cascara (Rhamnus), the last only in 1 stomach. Nothing was found to indicate that cultivated varieties had been eaten. Seeds, which amount to 4 percent, are those of the poison oak (Rhus), and a nonpoisonous species, with filaree (Erodium) and Amisinckia, most of them useless plants or worse.

SUMMARY.

From this brief inspection of the cactus wren's food it is seen that it contains but little that is useful to man, while the great bulk is made up of elements that are, or would be, harmful if present on cultivated lands. The bird thus sustains the good reputation of the rest of its family.

OTHER WRENS.

Some half a dozen stomachs each of the western winter wren (*Olbiorchilus hiemalis pacificus*) and dotted canyon wren (*Catherpes mexicanus punctulatus*) and the rock wren (*Salpinctes obsoletus*) have been examined. This number is entirely too small to serve for specific statements in regard to their food except that it may be said that it corresponds closely to that of the other species of the family discussed in foregoing pages.

From this somewhat limited investigation of the food of the California wrens several points may be regarded as established: (1) That these wrens are essentially insectivorous; (2) that an overwhelming majority of the insects composing their food are harmful species; (3) that the quantity of vegetable food eaten is so small as to have no economic importance.

CALIFORNIA CREEPER.

(*Certhia familiaris occidentalis.*)

Only 7 stomachs of the California creeper were available for examination, but they confirm the good opinion observers have formed of the habits of this bird. Like the titmice and nuthatches, the creeper is an indefatigable forager on the trunks and branches of trees, and the food it obtains there is of the same nature—that is, small beetles (many of them weevils), wasps, ants, bugs, caterpillars, and a few spiders. Of the 7 stomachs examined, only 1 contained vegetable food, and this had only 19 percent of seed, too much digested for identification.

While the creeper is not systematically classed with the nuthatches and titmice, its food habits closely ally it to these birds and to the wrens, and whatever good is true of them applies with equal force to the creeper.

NUTHATCHES AND TITMICE.

(Paridæ.)

Few families of birds contain so many absolutely harmless and thoroughly useful species as that of the nuthatches and titmice. All of the American species are small, and several are so minute that the larger species of humming birds exceed them in size. In colors they are neither brilliant nor showy, black, white, brown, and gray being the predominant tints of their plumage. In manners and voice they are equally unobtrusive, and so little do their movements attract attention that one may be surrounded by them in the forest before he is conscious of their presence. More than forty species and subspecies of the titmouse family reside within the limits of the United States, of which some fifteen live in California.

From an economic standpoint the titmice are the reverse of insignificant. They are essentially inhabitants of trees and shrubs, and obtain almost their entire living from them. Their food consists largely of small insects and their eggs and larvæ, and, as the individuals of most of the species are numerous and spend all the daylight hours searching for food, it follows that the number of harmful creatures they destroy is beyond calculation. As conservators of forest and orchards there are few birds that compare with them. The insects they destroy are largely those that feed upon the leaves, blossoms, and fruit of trees, with some that bore into the wood or burrow under the bark, thereby injuring or killing the tree itself. On the other hand, they do not prey upon fruit, grain, or other product of husbandry. The small amount of vegetable matter they eat consists principally of small galls, whose destruction is a benefit, with a few seeds and a little wild fruit.

PYGMY NUTHATCH.

(*Sitta pygmæa.*)

The nuthatches are small, inconspicuous birds that live upon trees and for the most part remain in forests or groves, though not rarely visiting the orchard. While allied to titmice they form a fairly well-defined group and can be easily distinguished from titmice proper. As gymnasts they probably lead the avian world. After watching their movements one might suppose that nature had quite exempted them from the operation of the laws of gravity, as they move up or down a tree with equal facility, or along the underside of a horizontal branch where they inspect a promising knot hole or cranny, apparently without the least idea that they are upside down. The food they obtain from trees is of the same general character as that of the rest of the titmouse family.

Unfortunately only a few stomachs of these birds are at hand for examination—enough, however, to give a general idea of the diet.

The pygmy nuthatch is the smallest of the group, but as a destroyer of noxious insects it is far from insignificant. Only 31 stomachs of this feathered midget are available for examination, but the number is sufficient to bring out some strong points of the bird's diet. The relative proportions of animal and vegetable food, as indicated by the contents of these stomachs, are approximately 83 percent of the former to 17 percent of the latter.

Animal food.—The largest item of animal food is Hymenoptera, composed mostly of wasps, with a few ants. They amount to about 38 percent of the whole. Next in order are Hemiptera, aggregating 23 percent. A large proportion of these belong to the family Cercopidæ, commonly known as spittle-insects, from the fact that they develop inside of a froth-like substance resembling saliva produced in summer upon grass and various plants and trees. While none of these insects have yet become pests, there can be no doubt that collectively they do considerable harm to plants, as sometimes they are very abundant and subsist entirely upon their sap.

In this connection peculiar interest attaches to the contents of 20 stomachs of the pygmy nuthatch from the pine woods of Pacific Grove, near Monterey, June 24 to July 13. Eighteen of these stomachs contained remains of Cercopidæ, and six were filled with them. The average for the 18 stomachs is a little more than 76 percent of all the food. They were not identified specifically, but undoubtedly are one of the several species known to feed upon the pine. Beetles of various families form about 12 percent of the food. There were many weevils, or snout-beetles, in the stomachs, and some coccinellids, which were the only useful insects found. They amount to 9.6 percent, which is the largest record for any bird yet examined, except the vireos; but as this percentage is based upon the examination of so few stomachs, it can not be considered as wholly reliable. Caterpillars amount to 8 percent, and with a few spiders (1 percent) account for the rest of the animal food.

Vegetable food.—The vegetable portion is made up almost entirely of seeds, of which a majority are those of conifers, as was to be expected from the habits of the bird.

Two other species of nuthatches, the slender-billed (*Sitta c. aculeata*) and the red-breasted (*Sitta canadensis*) occur in California. A few stomachs of each have been examined and the contents found to agree substantially with the foregoing.

SUMMARY.

In conclusion, it may be said that, like other genera of the Paridæ, nuthatches are eminently useful birds. They do not prey upon cultivated crops, eat but few useful insects, and probably are among our most efficient conservators of the forest and of the orchard.

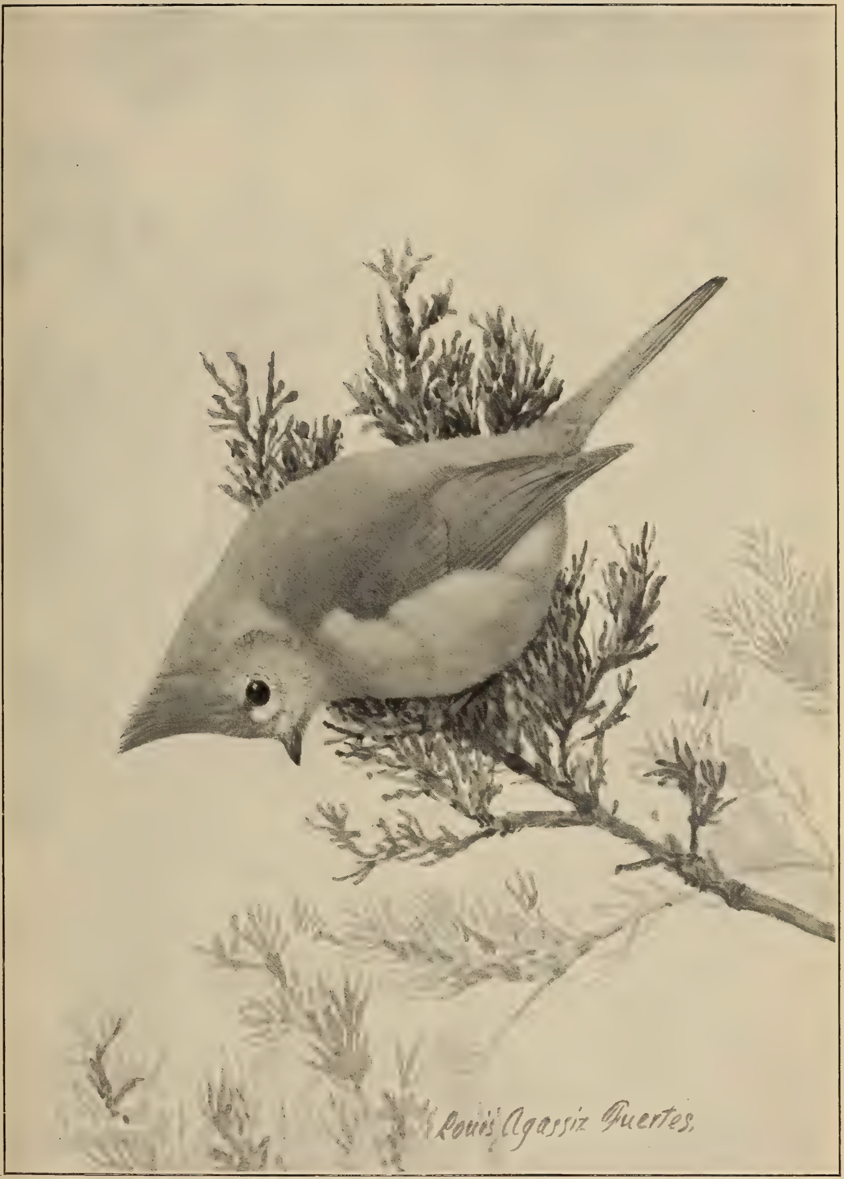
PLAIN TIT.

(*Bœolophus inornatus.*)

(Plate V.)

The plain tit, like the rest of its family, is quiet and unobtrusive, attracting little notice by its voice and movements, and probably is the most modestly dressed of them all. While it seems to prefer to hunt on oaks, it does not neglect fruit trees, and often may be seen flitting about the orchard.

The general character of its food is the same as that of other small arboreal species. The relative proportions consumed, however, differ somewhat from those taken by other members of the family. The plain tit eats a greater proportion of vegetable food than any other titmouse so far as known, and, what is more remarkable, a large part of this consists of the pulp of fruit.


Louis Agassiz Fuertes.

PLAIN TITMOUSE (BAEOLOPHUS INORNATUS).

The following brief account of the food of this bird can be considered only preliminary, as but 76 stomachs were available for examination. These, however, are distributed through the year, so that every month is represented by at least three. While these results may be modified by future investigation, they probably afford a fair general idea of the yearly food of the species.

Animal food.—Unlike most of the titmice, the plain tit eats less animal than vegetable food, the proportion being 43 percent of animal to 57 of vegetable. Examination of a greater number of stomachs may modify these figures but probably will not reverse them. The animal food is quite evenly divided among a number of elements, but, as with the bush tit, bugs (Hemiptera) appear to be the favorite, mostly eaten during the summer months. These amount to 12 percent of the food. This is a little more than one-fourth of the amount of Hemiptera eaten by the bush tit. The black olive scale is a prominent element of this part of the diet, and forms nearly 5 of the 12 percent. In the month of August nine stomachs were taken, and 34 percent of their contents consisted of these scales, while one stomach was filled with them. The plain tit probably eats this insect more or less throughout the year, but the limited number of stomachs under consideration does not warrant a positive statement. The other hemipterous food consists of representatives of several families, such as leaf-hoppers (Jassidæ), jumping plant-lice (Psyllidæ), tree-hoppers (Membracidæ), and other remains not identified.

Lepidoptera, represented mostly by caterpillars, are the next most important ingredient of the food. They amount to nearly 11 percent, and are mostly eaten during the warm months, though one stomach taken in March was filled with caterpillars and one moth.

Beetles (Coleoptera) are next in importance in the food, of which they form nearly 7 percent. All are harmful species, but the members of one family are especially interesting. The genus Balaninus is composed of weevils in which the snout attains its greatest length, and sometimes is as long as the rest of the body. The insects, by means of this long snout, bore into nuts and acorns, wherein they deposit eggs, which hatch grubs that eat the nut. The tit finds these beetles while foraging upon the oaks. One stomach contained the remains of 13 of them, another 11, a third 8, and a fourth 7, while others contained fewer. The plain tit feeds upon mast to some extent, and it is interesting to note that some of the stomachs which held remains of Balaninus contained acorn meat also, showing that the birds found the one while foraging for the other.

Hymenoptera in the shape of ants amount to nearly 4 percent, while wasps make up the total of this order to about 6 percent.

Other insects aggregate a little more than 5 percent. Tipulid flies (daddy-long-legs) were found in several stomachs, as were grasshoppers also. One stomach contained the remains of 13 of the latter, a remarkable number for so small a bird, but the bulk was not great, and they were probably the débris of several meals. Spiders are a very constant article of food, but do not appear in great numbers, as the average for the year is somewhat less than 1 percent.

Vegetable food.—In the vegetable food of the plain tit, fruit amounts to nearly 32 percent. Fruit is a rather surprising item of the food of this bird, as no one, so far as the writer can learn, has ever accused it of destroying fruit. The quantity is three times as much as is eaten by the linnet, and is another illustration of the fact that in estimating the status of a species the number of individuals as well as the amount eaten by each individual must be considered. The fruit consumed appears to be of the larger cultivated varieties, as no seeds of wild berries were found.

Cherries were identified in a number of stomachs, and pulp of the larger fruits was abundant. As considerable of this was contained in stomachs taken in the late fall and winter months, it is evident that it was refuse left on the tree and of no value. Not only does the plain tit eat fruit, but to some extent it indulges also in grain. Oats were found in a number of stomachs and constituted nearly 30 percent of the contents of two stomachs taken in January. Grain is probably not eaten to any considerable extent, however, as the amount for the year is but little over 1.5 percent, and oats was the only variety identified. Leaf galls, seeds of poison oak, weed seeds, unidentifiable matter and rubbish make up the remainder, 24 percent, of the vegetable food. None of these are of much economic importance, except that the distribution of poison-oak seed is a nuisance.

SUMMARY.

From this somewhat imperfect review of the food of the plain tit it is evident that in its present numbers it is useful. The insects it eats are practically all harmful and the scales exceedingly so. Moreover, its habit of foraging in trees enables it to capture some of the worst enemies of fruit and renders its work in this direction invaluable. On the other hand, it eats quite a large percentage of fruit, most of which appears to be of cultivated varieties, and should the bird ever become as abundant as the linnet now is it would undoubtedly be a pest. This contingency, however, is extremely unlikely.

CHESTNUT-SIDED CHICKADEE.

(*Parus rufescens* subspp.)

While this bird at present inhabits mountain regions rather than orchards, still it may not be out of place to give a short digest of our knowledge of its food. Fifty-seven stomachs were available for examination, and these were taken in every month of the year, except March, April, and May. The food consisted of nearly 65 percent of animal matter and 35 of vegetable.

Animal food.—Caterpillars constitute 18 percent of the animal portion. They were found in nearly every month in which stomachs were taken, there being a fairly good percentage even in January and December. The greatest amount, 53 percent, was eaten in August. Hemiptera, consisting of leaf-hoppers, tree-hoppers, and olive and other scales, constitute the most important item of food, and amount to about 25 percent. These were found in all except two winter months. Wasps were eaten to the extent of 13 percent of the food, but no ants were found. Beetles amount to less than 2 percent of the food, but nearly all are noxious; weevils appeared in one stomach. Flies and grasshoppers are conspicuous by their absence, and not even a trace of one was discovered. Spiders are a very constant element of the food of nearly all the titmice. In that of the chestnut-side they amount to nearly 7 percent for the year, though in August they constitute nearly 16 percent.

Vegetable food.—The vegetable portion of the food consists of fruit pulp 8 percent, seeds nearly 20 percent, and miscellaneous matter 7 percent. Fruit pulp was found only in a few stomachs taken in the fall and winter and was probably waste fruit. The seeds eaten were mostly those of coniferous trees, as was to be expected of a bird which spends so much of its life in evergreen forests. The miscellaneous items of the vegetable food are leaf galls, bits of moss, and rubbish.

SUMMARY.

The above sketch of the chestnut-sided chickadee, while very imperfect, suffices to show the general character of its food. A few stomachs also of the mountain chickadee (*Parus gambeli*) have been examined and the contents found to agree in a general way with the food of others of the group.

WREN TIT.

(*Chamaea fasciata* subspp.)

This modest, secretive bird, like the eastern chat, is more often heard than seen. At present it does not often live in orchards and gardens, and when it visits these it sticks closely to hedges and the denser parts of the shrubbery. In general it keeps to its original abiding places in the dense chaparral of canyons and hillsides. So long as it is confined chiefly to these situations its food habits will never be of more than secondary importance, but as cultivation spreads the bird will be forced more and more to reside in cultivated districts.

The number of stomachs available for examination is 165, and as they represent every month except July they afford a fair idea of the salient features of the bird's yearly food. Of this 52 percent is animal matter, insects and spiders, and 48 percent of various vegetable substances.

Animal food.—The most important item of the animal food consists of ants and wasps (Hymenoptera), which amount to 23 percent of the whole. This is in strong contrast to the bush tit, whose diet contains scarcely any of these insects. About half of the Hymenoptera are ants. This is exactly what might be expected of a bird of such terrestrial habits and one so given to lurking under bushes and about decayed logs and rubbish. The other insects of this order are small wasps. Beetles, collectively, the next most important item of food, amount to about 10 percent. The only useful species identified were a few ladybirds (Coccinellidæ), and a separate account of these was kept in order to estimate the harm done by their destruction. The result shows that the diet of the wren tit contains less than 1 percent of these useful beetles. The remaining beetles belong to various families, all of them harmful to vegetation. Caterpillars constitute a little less than 8 percent of the food, and are a very constant element of the diet. They appear to be eaten at all seasons, but in the early summer they amount to about one-fourth of the food. Quite a number of cocoons of tineid moths also were present in the food.

Bugs (Hemiptera) are eaten to the extent of about 7 percent of the animal diet. In this respect the wren tit differs from the bush tit, over 44 percent of whose food is made up of these noxious insects. In one particular, however, the two birds are alike; scales (Coccidæ) are prominent in the food of both. The black olive scale (*Saissetia oleæ*) and the greedy scale (*Aspidiotus rapax*) were identified in the stomachs of both birds, and many not specifically identified were found. The scales were probably obtained from orchards, as it is not likely that these insects have spread to wild plants and forest trees. As scales are to be had at all seasons they are a constant element of the food of tits. The remaining animal food, less than 5 percent, is composed of various insects and some spiders. One stomach contained the legs of a grasshopper and another the remains of a wood-cricket. These are the only orthopterous remains in any stomach. Flies (Diptera) were eaten very sparingly. Spiders appeared in a great many stomachs but not in large numbers. They amount to a little less than 2 percent of the food. In one stomach were found 26 mites, commonly parasitic on beetles and other insects. Their hosts had probably been eaten by the tit.

Vegetable food.—The vegetable contingent of the food, 48 percent, is made up of various substances, but may be arranged in three categories—fruit, poison-oak seeds, and other vegetable matter. Fruit, identified by seeds, pulp, and skins, amounts to a little more than 20 percent of the whole food. Few direct complaints, however, have been lodged against the wren tit on the score of damaging fruit, and yet this record is nearly twice that of the linnet—the bird against which the heaviest charges are made by the orchardist. The reason for this difference is probably not far to seek. There are undoubtedly a hundred linnets in California to one wren tit. This again illustrates the point before made, that the mischief done by birds usually results from a superabundance of the individuals of a particular species, all uniting simultaneously to attack some particular product. Moreover, the fruit consumed by the wren tit consists largely of wild varieties—such as elder berries (Sambucus), snow berries (Symphoricarpos), coffee berries (Rhamnus), twinberries (*Lonicera involucrata*), and others of a similar character. Seeds of blackberries or raspberries (Rubus) were found in a few stomachs, but these may have been either wild or cultivated.

As the seeds of poison oak (*Rhus diversiloba*) occurred in many stomachs a separate account of them was kept. From August to February, inclusive, they form a constant and important element of the diet. For these seven months they constitute more than one-fourth of the food, and the average for the year is over 16 percent. It seems natural enough that the wren tit should eat these seeds, as they are abundant and easily accessible. The fact is to be deplored, however, as they are not destroyed in the stomach, but either pass through or are regurgitated in condition to germinate. The seeds apparently are eaten for the sake of the rather thin layer of dry white pulp that surrounds them. No doubt this is very nutritious, as in winter poison-oak seeds are a common article of diet for many species of birds. The rest of the vegetable food, over 11 percent, is made up of a few weed seeds, leaf galls, and rubbish. None of it has special economic significance.

FOOD OF YOUNG.

Among the stomachs examined were those of a brood of 5 nestlings about two weeks old, and therefore nearly ready to leave the nest. The results are of interest as showing that the wren tit follows the usual rule and feeds its young entirely on animal food. The largest item is caterpillars, which amount to 63 percent of the contents. Spiders, with their cocoons and eggs, are next in importance, with 15.6 percent. Bugs, mostly leaf-hoppers, form 12.2 percent. Beetles of the May-beetle family, with a trace of eggshell, make up the remainder, 9.2 percent. One can not fail to notice the soft nature of most of this food provided for the young. The beetles are the only exception, and these were the smallest item.

SUMMARY.

In summing up it is evident that so far as its natural food is concerned the wren tit does little or no harm, as coccinellid beetles, the only really useful insects it eats, are consumed very sparingly. Its vegetable diet presents two points for criticism. It eats a moderate amount of fruit, and were the bird as abundant as the linnet the harm it would do in orchards would perhaps more than counterbalance the good. The wren tit, however, naturally is a denizen of dense shrubbery, and as this is cleared away for farms and orchards the species is likely to diminish in numbers rather than increase, unless its habits radically change. The consumption of the seeds of poison oak is an unfortunate habit, since it aids in the dissemination of this poisonous plant, already too common and widespread. All things considered, the wren tit for the present is to be classed as beneficial.

CALIFORNIA BUSH TIT.

(*Psaltriparus minimus californicus.*)

(Frontispiece.)

The bush tit is one of the smallest species of the family, and although its name implies that it is partial to bushes, it more often is seen in large oaks and frequently on the tops of the highest trees. It shows the same indifference to the presence of man as the rest of the family, and frequently may be observed scrambling over orchard trees in search of its favorite food and paying no attention to the observer. That it does not prey upon fruit to an appreciable degree appears from the fact that less than 1 percent of its food for the year consists of fruit. Insects that live on trees, however, constitute four-fifths of its food, and most of these are harmful.

In the investigation of the food of this bird 353 stomachs were examined. They were collected in every month of the year, although April is represented by but a single one and March by only six. The greater number were taken during the growing months, when fruit and grain abound, and the fact that in these months the bird ate almost none of these products speaks volumes in its favor. The first analysis of the food of the year gives nearly 81 percent animal matter, composed entirely of insects and spiders, to 19 percent of vegetable. As the bush tit inhabits the same range during the year, monthly variations in the kind and proportions of food are only such as seasonal changes necessitate, and as these do not largely affect insects, which constitute the great bulk of the bush tit's food, it follows that the variation in diet from one month to another is not great. The smallest quantity of animal food was in March, when it amounted to 53 percent, but the percentage was almost exactly the same for November. One stomach taken in April contained nothing but insects and spiders, and 11 collected in June contained no vegetable food. Probably examination of a greater number collected in these months would result differently. While the material available for the present investigation is not so extensive as could be desired, it is sufficient to indicate beyond reasonable doubt that the relative proportions of animal and vegetable food in the diet of the bush tit vary little from season to season.

Animal food.—The largest item in the insect portion of this bird's food consists of bugs (Hemiptera), which amount to over 44 percent of the whole. The gnatcatchers are the only birds yet investigated whose diet is made up so largely of this order of insects. Moreover, the particular families of Hemiptera so extensively eaten by the bush tit are the two that are most destructive to the interests of horticulture—namely, the plant-lice (Aphididæ), and bark-lice, or scales (Coccidæ). The last amounts to nearly 19 percent of the year's food, and are eaten in every month. The greater number are consumed in July, 46 percent; June follows second in rank, when they constitute 33 percent of the food of that month. The large black olive scale (*Saissetia oleæ*) was identified in 44 stomachs, but other species also were found. The question is often asked, Does any bird feed upon the San Jose scale? While the writer is not prepared to give a positive affirmative answer from direct evidence, there can be no reasonable doubt that this insect is often eaten by birds. It must be borne in mind, however, that the so-called San Jose scale is one of the smaller species, and its distinctive characters are so minute that after it has been taken into a bird's stomach, mixed with other food, and more or less digested, it is impossible to determine its identity. It is easy to ascertain that a pasty mass in a bird's stomach is composed of scales partly digested, but to identify the species is quite another matter. The olive scale and others of its genus, on the other hand, are so large and their shells are of such structure that they can often be identified, at least generically, even from fragments.

While the San Jose scale was not positively determined, another species of the same genus, the greedy scale (*Aspidiotus rapax*), was found in 4 stomachs, and scales not specifically identified were found in 113. Of a total of 353 stomachs, 158 held scales; several were entirely filled with them, and in quite a number upwards of 90 percent of their contents consisted of these insects. No other family of insects was identified in so many stomachs. As it is certain that the food contained in a bird's stomach at a given time is only a fraction of the daily consumption, we may infer that not many days pass in the life of a bush tit when it does not eat a considerable number of scales.

Before leaving the subject it may be well to add a few words on the economic relations of scale-insects in order that the value of the work done by the bush tit may be fully appreciated. Mr. Marlatt says:

> The most destructive insect enemies of fruits in California are undoubtedly the scale insects, few if any other insects, aside from the grape Phylloxera, at all approaching them in this respect. Of these, the ones of greatest moment and in the control of which vast sums of money are expended are the black scale, the red scale, and the San Jose scale. For the olive and citrus plants the black scale is the most important, and for the deciduous plants the San Jose scale takes similar rank.[a]

When the immense number of bush tits and other birds in California that eat scale insects is considered, it becomes evident that the aggregate of these pests annually destroyed by them must be enormous. It may be urged that despite the attacks of birds, scales have caused, and still are causing, much damage to fruit trees, and that the work of birds alone is inadequate to save the trees from destruction. This is undoubtedly true, but it must be remembered that the birds are confronted with abnormal conditions. The great and rapid development of the fruit-growing industry on the Pacific coast and the simultaneous and widespread introduction of several new species of scales resulted in a sudden increase of these pests, while their enemies, the birds, enjoyed no such opportunities for increase. In time, no doubt, an equilibrium would have been reached, and birds would have played an important part in establishing this by exerting a constant and steady check upon the increase of scales. Unaided, however, their numbers are too few to cope with the insects which, under favorable conditions of climate and environment and unmolested by other natural insect enemies, multiply to countless myriads.

The remaining portion of the hemipterous food of the bush tit, over 31 per cent, is made up of plant-lice, tree-hoppers (Membracidæ), leaf-hoppers (Jassidæ), some jumping plant-lice (Psyllidæ), and a considerable number of false chinch bugs (*Nysius angustatus*), with a few lace-bugs (Tingitidæ). Of the plant-lice little need be said. As pests to vegetation their reputation is world-wide. No part of a plant is free from attack. They infest leaves, trunk, and roots, and some of their legions of species prey upon nearly every kind of land plant. They are a frequent element of the food of the tit, but as their bodies are of the softest texture specific identification is not possible. Many of them, however, were determined to be of the species commonly called 'woolly aphides,' as their bodies are covered with a white cottony or woolly substance. Aphides were identified in 30 stomachs, but it is probable that they were contained in more, as a pasty mass that could only be called 'hemipterous remains' was of frequent occurrence. Leaf-hoppers were found in many stomachs, and appear to be favorite food. Tree-hoppers also are eaten to a considerable extent, and as their bodies are hard, like those of beetles, they are more easily recognized than plant-lice. The jumping plant-lice were found in a few stomachs, but were rather difficult to distinguish in the conglomeration of plant-lice and other soft-bodied insects. False chinch bugs were found in a number of stomachs from the southern part of the State. These, perhaps, were the best preserved of any of the insects, for in most cases they could be distinguished individually. Over 50 were taken from one stomach.

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[a] Insect control in California, by C. L. Marlatt, U. S. Dept. of Agriculture, Yearbook, 1896, p. 220.

Next to the bug family, the favorite food of the bush tits seems to be beetles. They constitute somewhat over 10 percent of the year's food and attain their maximum in September, when they amount to a little more than 27 percent of the food. The fewest were taken in December—less than 1 percent—but in all the other months they were found to a moderate extent except in the one stomach taken in April, which contained none. Among them were species of the ladybug family (Coccinellidæ), which are useful insects, as they are mostly carnivorous and feed largely upon plant-lice. In order to ascertain just how much harm the tit does in devouring ladybugs, a separate account was kept, and it was found that the total amount eaten during the year was 2.4 percent of the whole food. Most of these insects were eaten in September and October, when the consumption amounted to 11 and 6 percent, respectively. These are the only decidedly useful insects eaten by the bush tit, and in view of their small number the subject may be dismissed without further comment. The other beetles taken were largely small leaf-beetles (Chrysomelidæ), all of which are harmful. With them were some small weevils (Rhynchophora), which feed upon seeds and other parts of plants, with a few scolytids that burrow under the bark of trees to their great injury.

Butterflies and moths (Lepidoptera), most of them in the larval form (caterpillars), are next to beetles in importance in the food of the bush tit. They are, however, far from being such favorite food as bugs. The total is a little more than 16 percent. They are fairly evenly distributed through the year, though in spring and early summer they are consumed to a somewhat larger extent than in fall and winter. The greatest consumption was in May, when they aggregated nearly 69 percent. Lepidoptera in the adult form do not as a rule constitute an important part of the diet of birds, but, with the exception of the flycatchers, the titmice perhaps eat the most. The greater number consumed by these insects, however, are eaten as larvæ—caterpillars. A few, however, are eaten in the pupa state, and here the bush tit has a good record. In a number of stomachs were remains of the pupæ of the codling moth, one of the worst pests to the apple industry. This insect is protected from the attacks of birds by its peculiar mode of life. It passes the larval stage inside the apple. The adult moth flies mostly by night and hides during the day. When the larva is full grown it leaves the apple and seeks a place of concealment, such as a crevice in the bark of the tree, a crack in the trunk, or among rubbish on the ground, where it changes to a chrysalis. It is in this stage that the insect is most vulnerable to the attacks of birds, and as the whole family of titmice get most of their food by searching in just such places as those used for concealment by the larva, it is not surprising that they find and devour many of them.

The cocoons of certain tineid moths are a very constant, though not large, component of the food of the bush tit. The larvæ of many of the Tineina are leaf-miners, and therefore injurious when attacking economic plants.

Strangely enough, wasps and ants (Hymenoptera) are nearly absent from the food of this bird. The total amount for the year is less than 1½ percent. In view of the fact that ants are always crawling over the trunks and branches of trees, the very places where the tits feed, it seems strange that so few of them are eaten. Moreover, plant-lice always have ants in attendance upon them, and when tits eat so many plant-lice it is rather remarkable that they should not take some of the ants also, as do the smaller woodpeckers, whose food habits are in many respects so similar. In 353 stomachs only two ants were identified, one in the adult and one in the pupal stage, and these were in separate stomachs. In 17 other stomachs a few fragments of what probably were small wasps were found, which make up the total of the hymenopterous diet of the bush tit.

The remaining animal food of this bird, about 8 percent, is composed of various insects, such as a few flies, a few bits of grasshoppers, insects' eggs not further identified, with a considerable number of spiders. That the tits should not eat grasshoppers is not surprising, as these insects do not commonly infest trees where the birds feed, and as a rule they are rather large game for such small birds. The great bulk of the 8 percent, however, consists of spiders, which constitute a constant item of food in every month. Quite a number of pseudoscorpions also were found in the stomachs, but, owing to their minute size, the percentage is not very noticeable.

Vegetable food.—The vegetable food of the bush tit may be considered under two categories—fruit and miscellaneous matter. Fruit in some form was found in stomachs taken in the months from August to November, inclusive. The average amount eaten in those four months was a little less than 1 percent. It is represented in the stomachs by pulp and skins, which have not been further identified. The miscellaneous vegetable matter is composed of a few seeds, granules of poison oak (*Rhus diversiloba*), leaf galls, and rubbish. The seeds of poison oak are eaten by many birds, and so are distributed about the country, but, as a rule, they are too large to be swallowed by the tit, which contents itself with pecking off the wax surrounding the seed. This is identified in the stomachs by certain woody granules. A large portion of the vegetable food consists of small galls, apparently from leaves. They are eaten when first developed, when young and tender. As each of these probably contained an egg or grub, it is questionable if they should not be classed as animal food. The remainder of the vegetable matter is of such a nature that the only term which really describes it is 'rubbish.' It is probable that it is mostly taken accidentally along with other food, and perhaps should not be considered in the food category.

FOOD OF NESTLINGS.

Among the 353 stomachs of the bush tits whose food has been discussed was one brood of eight nestlings about ten days old. As these are the only nestlings collected, their food would merit attention, but examination shows it to be of unusual interest. The vegetable matter in these stomachs was only three-fourths of 1 percent and consisted of one seed and some rubbish. The animal matter comprised, approximately: Beetles 2, wasps 2, bugs 8, caterpillars and pupæ 80, and spiders 7 percent. The point of greatest interest, however, lies in the fact that every one of these stomachs contained pupæ of the codling moth, distributed as follows: Two stomachs contained 2 each, two contained 3 each, one contained 4, one 7, one 9, and one 11, making 41 in all, or an average of over 5 to each. The oak tree in which these birds were found was in a belt of timber along a creek, and just across the stream was a considerable area of neglected orchard. It is evident that the parent birds used this orchard as a foraging ground and did their best toward remedying the neglect of the owner. As with nestling birds feeding and digestion are almost continuous during the hours of daylight it follows that the above record would be several times repeated during a day's feeding. There were probably not less than a dozen nests of the bush tit (several were seen) along the border of this orchard, and if, as is probable, the occupants all did as good work as the ones recorded it is evident that the birds must exert a powerful restrictive influence upon the increase of the codling moth, as well as other insects.

SUMMARY.

In a résumé of the food of the bush tit the most prominent points to be considered are the fact that four-fifths of its diet consists of insects and spiders, nearly all of which are harmful; that more than half of its animal food is limited to a single order of insects, Hemiptera; that it eats the particular families of this order which contain the worst of insect pests; that the vegetable contingent of the food is made up almost entirely of substances of no economic value. It is doubtful if more efficient checks upon the increase of many species of forest and orchard insects can be found than the titmice and other closely related species. Bush tits, therefore, are a valuable asset to the State of California and should be protected and encouraged in every possible way.

Following is a list of insects identified in the stomachs of bush tits:

COLEOPTERA.

Crepidodera helxines.
Diachus auratus.
Orthoperus sp.
Corticaria scissus.
Scymnus marginicollis.
Scymnus pallens.
Scymnus nanus.
Notoxus alamedæ.
Anthicus sp.
Apion vespertinum.
Deporaus glastinus.

HEMIPTERA.

Nysius angustatus.
Geocoris bullatus.
Saissetia oleæ.
Aspidiotus rapax.

LEPIDOPTERA.

Carpocapsa pomonella.

The following families of Hemiptera were identified:

Tingitidæ.
Capsidæ.
Membracidæ.
Jassidæ.
Psyllidæ.
Coccidæ.
Aphididæ.

KINGLETS.

Kinglets, like gnatcatchers and titmice, are small, active birds and spend most of their lives on trees. So nearly do the feeding habits of these diminutive arboreal species resemble each other that in winter it is not unusual to see companies of titmice, kinglets, creepers, and nuthatches all together, engaged in the same unending search for food. When one notices how thoroughly each tree is inspected by dozens of pairs of keen, prying eyes, he is surprised that any insects or their eggs should survive to produce broods.

RUBY-CROWNED KINGLET.

(*Regulus calendula.*)

The ruby-crowned kinglet is known in California principally as a winter resident, though in some of the high mountains it remains through the summer and breeds. Its small size would prevent it from doing appreciable injury to fruit or grain were any to be had when it is in the fruit and grain raising regions.

As might be inferred from field observations, its diet consists almost entirely of insects and their eggs, and the number it destroys is beyond computation.

In investigating the food of the kinglet 294 stomachs were examined, all taken in California from September to April, inclusive. Only 1 stomach was collected in September, 5 in March, and 5 in April. The other included months are fairly well represented. The food consisted of 94 percent of animal matter and 6 percent of vegetable. It was made up of insects, spiders, and pseudoscorpions—minute creatures resembling microscopic lobsters—fruit, weed seeds, etc.

Animal food.—The animal food is quite evenly distributed through the season. The greatest amount, 100 percent, appeared in the first and last two months, and the least, 79 percent, in January. Hymenoptera, in the shape of wasps, and a few ants appear to be the favorite food, as they aggregate over 32 percent of the whole. The stomach taken in September contained none of them, but in every other month they are fairly well represented, and with but little variation until March, when there is a sudden increase, which continues in April. This is undoubtedly due to the increased numbers of these insects following the return of warm, dry weather, for the order is noted for its fondness for warmth and sunshine. Adverse criticism may be made upon this element of the kinglet's diet, as flying Hymenoptera are useful agents in the fertilization of flowers, and some species of plants are dependent upon them for the performance of this important function. The parasitic species of this order also were found to some extent in the food of the kinglet, and unquestionably many of these are decidedly useful.

In the food of the kinglet, bugs (Hemiptera) are next in importance. They constitute nearly 26 percent of the diet, and are found in greatest quantity in the first months of the bird's winter stay, in September and October, but gradually decrease till spring.

The following families of Hemiptera were recognized in the stomach contents: Assassin-bugs (Reduviidæ), lace-bugs (Tingitidæ), leaf-bugs (Capsidæ), leaf-hoppers (Jassidæ), tree-hoppers (Membracidæ), jumping plant-lice (Psyllidæ), plant-lice (Aphididæ), and scale-insects (Coccidæ). Stink-bugs (Pentatomidæ), which are the most universally eaten by birds of any Hemiptera, are entirely wanting. Evidently it was not lack of opportunity that prevented the kinglets from eating the last-named insects, for other birds collected at the same time and place had partaken of them freely. From the human point of view it is not strange that birds should reject them, for to us their odor is vile and their taste nauseous. It will be noticed that the Hemiptera selected by the kinglet are mostly species of small size, but happily they are the very ones that are the most harmful to the interests of man. The tree-hoppers, the leaf-hoppers, and the jumping plant-lice, when abundant, are pests, and often do great harm to trees and smaller plants, while the plant-lice and scale-insects are the worst scourges of the fruit grower—in fact, the prevalence of the latter has almost risen to the magnitude of a national peril. As has been before pointed out, it is these small and seemingly insignificant birds that most successfully attack and hold in check these insidious foes of horticulture.

Beetles of various families and species were eaten by the kinglet to the extent of 13 percent of the season's food. They belong to species that are more or less harmful, with the exception of a number of ladybirds (Coccinellidæ), which from their habit of feeding on plant-lice are eminently useful. The damage done by the destruction of these useful beetles, however, is small, since they aggregate less than 2 percent of the whole food. Singularly, nearly all were in stomachs obtained in February. In this month 8 percent of these beetles were eaten, while in no other month was so much as 2 percent taken. Another curious fact is that almost all of these belong to the genus Scymnus, which is made up of minute black creatures which one might think would pass unnoticed by birds. On the contrary, the small and insignificant individuals of this genus appear to be eaten much oftener than the larger and more showy species. While the eating of ladybugs by kinglets or other birds is to be deplored, it must be acknowledged that little harm is done so long as the numbers destroyed are as moderate as the above figures imply.

Of the harmful beetles eaten the weevils are perhaps the most interesting. One stomach contained 20 individuals, which seems a large meal in view of the size of the bird. Many of the weevils belong to the family of engravers (Scolytidæ), which live under the bark of trees and are forest pests. Another beetle found in many stomachs is *Notoxus alamedæ*, an insect that lives on trees, but which does no harm so far as known. One stomach contained the remains of

100 individuals of this species. Other beetles were found belonging to about a dozen families, all more or less injurious.

Lepidoptera, both larvæ (caterpillars) and adult forms (moths and butterflies) constitute only a small portion of the kinglet's diet. They were eaten sparingly in every month but one, but in all aggregate only 3 percent of the whole. While a few caterpillars were eaten, most of the lepidopterous food consisted of the minute cocoons of tineid moths, a family of immense size, wide distribution, and destructive habits. They are largely leaf-miners, and do much damage to the foliage of fruit and other trees. They are so small that even the little kinglet can eat a great many of them at a meal. In only 2 stomachs was anything found that resembled a grasshopper, and in both the quantity was small and the identification doubtful. Flies (Diptera) constitute nearly 17 percent of the diet, but are very unevenly distributed. The greatest amount in one month was in January, 35 percent, all of which was in 7 stomachs collected in the same place within three days. These 7 stomachs contained an average of 96 percent of dipterous remains. The birds evidently found a gathering of flies, probably dormant, and filled themselves almost exclusively with them. Another series of 4, taken at the same place in February, also had eaten flies to the extent of over 80 percent of the food. Spiders and pseudoscorpions amount to nearly 2 percent of the food, and are taken quite regularly through the season, though the greater number were eaten in October. These last are curious minute creatures, the various species of which live under stones, on the bark of trees, and in old books.

Vegetable food.—The vegetable food of the kinglets may be discussed under three heads—fruit, weed seeds, and miscellaneous vegetable matter. Fruit amounts to less than 1 percent of the food, principally elderberries (Sambucus). Weed seeds are present to the extent of a little more than one-tenth of 1 percent, and may therefore be dismissed without further comment. In the miscellaneous vegetable food two items include nearly the whole—seeds of poison oak and leaf galls—which together amount to somewhat more than 4 percent. The eating of the seeds of poison oak is not a commendable habit in any bird, for the seeds are not destroyed, but after the wax on the outside is digested are either passed through the intestine or disgorged, and so these harmful plants are disseminated. In many of the stomachs certain small round bodies were found that were diagnosed as 'leaf galls.' They appear to be galls in the early stage and are eaten while small and tender.

SUMMARY.

The foregoing discussion of the food of the ruby-crowned kinglet serves to confirm popular opinion with regard to this bird. As its food consists so largely of insects and as these include so small a percentage of useful kinds, the kinglet must be classed as one of the most beneficial of birds. To the horticulturist it is especially valuable, as nearly all of its food is obtained from trees. With respect to the persistency with which it forages among trees, it differs conspicuously from such aboreal species as leave the trees in midsummer to feed upon grasshoppers.

WESTERN GOLDEN-CROWN KINGLET.

(*Regulus satrapa olivaceus.*)

Another kinglet, the western golden-crown, occurs sparingly in winter in some parts of California. Only 9 stomachs have been examined, but these in the nature of their contents are so similar to those of the ruby-crown that statements applicable to the latter are almost certain to apply as well to this species. No vegetable matter was found in any of the 9 stomachs, and the insects belong to the same orders and were taken in essentially the same proportions as by the other species.

Following is a list of beetles which were identified in the stomachs of the two kinglets:

Coccinella t. californica.
Adalia frigida.
Scymnus pallens.
Scymnus nebulosus.
Hesperobænus abbreviatus.
Corticaria ferruginea.
Throscus sericeus.
Listrus interruptus.
Aphodius rugifrons.
Diachus auratus.
Crepidodera helxines.
Epitrix parvula.
Notoxus alamedæ.
Anthicus nitidulus.
Apion vespertinum.
Pityophthorus pubipennis.

Beetles were identified as belonging to the following families:

Staphylinidæ.
Coccinellidæ.
Monotomidæ.
Lathridiidæ.
Elateridæ.
Throscidæ.
Lampyridæ.
Malachiidæ.
Scarabæidæ.
Chrysomelidæ.
Tenebrionidæ.
Anthicidæ.
Curculionidæ.
Scolytidæ.
Other Rhynchophora.

GNATCATCHERS.

(*Polioptila* spp.)

Gnatcatchers are small, active birds of modest colors and unobtrusive notes. While not conspicuous, they are none the less deserving of respect and consideration. No complaints have been made that these busy creatures ever injure fruit or other crops. Their food is composed almost exclusively of insects, which they hunt with untiring energy from morning till night. Like the titmice and kinglets, gnatcatchers are fitted by nature to perform a service which larger species are unable to accomplish. There are hosts of minute insects, individually insignificant but collectively a pest, that are too small to be attacked by ordinary birds and are to be combated by man, if at all, only at great expense. It is to so deal with such pests that they may not unduly increase that these tiny birds would seem to be especially designed. Three species of gnatcatchers live within the limits of the State of California. Two of them, *Polioptila plumbea* and *P. californica*, are confined to the southern part, while the third, *P. cærulea obscura*, occurs locally throughout the State. The material for a thorough discussion of the food of these birds is unfortunately not at hand, but there is enough to show conclusively the nature of the work they are doing, and to enable us to assign them their proper rank among the friends and helpers of mankind.

The food of the gnatcatchers is remarkably constant in character throughout the year, varying but little from month to month. It is probable that these birds have a preference for a certain diet, and search till they find it.

Only 30 stomachs of *P. c. obscura* and the same number of *P. californica* have been examined, and their contents were so similar that they may be treated as from a single species.

Vegetable food.—Of the 60 stomachs three only contained any vegetable food whatever, and in only one did it amount to a respectable percentage. This one held 92 percent of seeds of some species of Rhus; another contained 8 percent of unknown seeds, and the third a few bits of rubbish, which amounted to only 2 percent of the whole contents. The total vegetable matter in the 60 stomachs aggregated less than 2 percent of the entire food.

Animal food.—The remainder of the food, over 98 percent, is made up of beetles, wasps, bugs, and caterpillars, with a few flies, grasshoppers, and spiders. Bugs (Hemiptera) constitute more than half of the whole food, 64 percent. These belong to the families of stink-bugs (Pentatomidæ), shield-bugs (Scutelleridæ), tree-hoppers (Membracidæ), leaf-hoppers (Jassidæ), and leaf-bugs (Capsidæ), with perhaps traces of several others. In one stomach were 20 percent of black olive scales (*Saissetia oleæ*). All of these are harmful to trees and other plants. Wasps and a few ants (Hymenoptera) are next in importance as an element of the gnatcatcher's food, and amount to over 16 percent of the whole. These birds, like the flycatchers, take much of their prey on the wing, and it is probable that wasps and small bees are captured in this way. Beetles of several families were eaten to the extent of over 7 percent of the food, but no decided preference for any particular kind is indicated. The only decidedly useful insects in any of the stomachs were 2 ladybird beetles (*Coccinella t. californica*), which had been eaten by *P. californica.* As this beetle is very abundant in California it is not surprising that birds should eat a few of them. Caterpillars amount to about 5 percent of the diet of the gnatcatchers. Apparently they are not a favorite food. Other insects, such as a few flies and grasshoppers, with some spiders, aggregate 6 percent, and probably are makeshifts, eaten when nothing more palatable is at hand.

SUMMARY.

While the foregoing discussion of the food of the gnatcatchers is based upon a small amount of material, the agreement of the evidence renders it probable that a much larger quantity would not greatly change the results. This evidence confirms what has long been suspected, that the gnatcatchers are doing a useful work and should be carefully protected.

RUSSET-BACK THRUSH.

(*Hylocichla ustulata.*)

The russet-back thrush abounds in the region about San Francisco Bay and other parts of the humid coast belt. It remains in this part of the State from April to November, inclusive, and then moves farther south for the winter. Its favorite haunts are the bushes and trees bordering streams, and in these it nests and rears its young.

While the thrush is very fond of fruit its partiality for banks of streams keeps it from frequenting orchards when they are far from water. It is most troublesome during the cherry season, at the time when the young are in the nest. It might be inferred from this that the nestlings are fed on fruit, but such is not the case to any noticeable extent. The parent birds eat the fruit themselves, while the young, as is usual with nestlings, are fed mostly upon insects. The old birds eat some fruit throughout the season, but do not seem to attract much attention by their depredations on prunes and the later fruits. As the thrush, unlike the linnet, is one of the so-called ‘ soft-billed ’ birds, its attacks on fruit are limited to the thin-skinned varieties. Probably it can peck holes in ripe cherries; still it is as often seen on the ground pecking at fallen fruit as attacking the fruit on the trees. It thus probably confines its depredations upon the later fruits to such as have already been broken into by linnets or other stout-billed birds.

Be this as it may, the thrush is an efficient destroyer of insects, and during the eight months of its sojourn in the fruit region a little more than half of its food consists of harmful insects. In the investigation of this bird's diet 157 stomachs were examined. The birds came from various points about San Francisco Bay, and on the coast from Monterey to Santa Cruz, except one migrant which was taken in the southern part of the State. Only 6 stomachs were collected in April, 5 in October, and 7 in November. In the remaining four months 139 were taken, and as they are fairly evenly distributed the results for these months may be looked upon as reasonably reliable. Examination of the food shows 52 percent of animal matter to 48 percent of vegetable.

Animal food.—The greatest quantity of animal food was eaten in the first and last parts of the season—in fact, the six stomachs collected in April contained no trace of vegetable food. The animal matter decreases in each month up to September, in which month only 17 percent was eaten. From this month it increases, and ends with 62 percent in November. Too much reliance should not be placed upon the latter figures, as they were obtained from entirely too few stomachs, and are likely to be modified by the examination of more material. The animal portion of the food is mostly insects and spiders, with some earthworms and sowbugs (Oniscus).

Useful beetles (Carabidæ, Coccinellidæ, etc.) amount to less than 3 percent of the food of the year. Most of them are eaten at the beginning of the season before other insects are common. Other beetles, all more or less harmful, constitute 11 percent of the year's food, and are eaten chiefly the first of the season, decreasing toward fall but with a slight increase at the end. They are pretty evenly distributed among the more common families, and no decided preference is evident for any. It is probable that the thrush eats any beetles that come in its way, and does not make special effort to find a particular kind.

Caterpillars form somewhat more than 8 percent of the food, and while they are eaten in every month of the thrush's stay, they are taken much more freely previous to August. During and after that month they cease to be an important element of the diet. The average consumption of the first four months of the season is a trifle over 15 percent. Ants and wasps (Hymenoptera), bugs (Hemiptera), flies (Diptera), and grasshoppers (Orthoptera) are eaten by the thrush, although little preference is shown for any one of these except for Hymenoptera in the shape of ants. These are eaten with remarkable regularity throughout the season, and form about 16 percent of the food. This is the largest insect element in the food of the thrush, and the regularity with which ants are eaten would seem to indicate that they are highly esteemed and especially sought for.

While these insects do not often make themselves pests by directly attacking fruits and crops, they aid and abet the work of other insects in a way which renders them as bad as the worst of those directly attacking crops. Their habit of caring for and protecting plant-lice is too well known to require extended comment. They take possession also of the empty burrows of wood-boring larvæ and extend these galleries still farther into sound timber. They often throw up mounds on lawns and in gardens, where it is almost impossible to exterminate them. In houses they frequently are an intolerable nuisance, infesting the pantry and spoiling food. The species that are not offensive in these various ways are mostly of a neutral character in their economic relations, and their destruction by birds does neither good nor harm.

Hymenoptera, other than ants (mostly wasps), bugs, flies, and grasshoppers, with some spiders, amount altogether to 12 percent of the year's food, and appear very regularly through the season. Grasshoppers, however, are near being conspicuous by their absence, as remains were found in only 4 of the 157 stomachs. This is rather remarkable for a bird whose habits are so terrestrial as those of the thrush. The majority of ground-feeding birds and many arboreal species feed largely upon grasshoppers. In fact, there is no order of insects for which insectivorous birds in general show such a decided preference. The spiders eaten by the thrush belong largely to the order Phalangida, commonly known as 'harvest men' or 'daddy-long-legs.'

Vegetable food.—The vegetable food of the thrush consists practically of fruit either wild or cultivated. A few weed seeds were found in several stomachs, but they amount to only a trace. It is probable that the greatest harm done by this bird is to the cherry crop, though undoubtedly it eats the later fruits to some extent. In May and June the fruit eaten reaches 41 and 38 percent, respectively, and this probably represents the greatest injury which the bird does, as most of the fruit was the pulp and skins of cherries. From June onward seeds of blackberries and raspberries (Rubus) were frequently found in stomachs, but as these berries are both wild and cultivated it is impossible to tell how much came from gardens. One stomach taken in early June contained seeds of the twin berry (*Lonicera involucrata*). Seeds of the elderberry (Sambucus) were abundant in stomachs taken in the late summer and fall, and indicate that this fruit constitutes a very considerable portion of the vegetable diet of the thrush at that season. Besides these were seeds of the pepper tree, of Solanum (a weed), and one stomach contained fruit of the coffee berry (*Rhamnus californica*). A few seeds of poison oak were found in two or three stomachs. The greatest amount of fruit was eaten in September, and reaches a total of over 80 percent, but as the number of stomachs is not as great as could be desired the result can scarcely be considered final. Moreover, a large part of this was wild fruit.

FOOD OF YOUNG.

Among the stomachs examined were those of 25 nestlings taken in June and July. Their approximate ages and dates of capture are given in the following table:

Brood No.	Number of young.	Age (approximate).	Date of taking.
		Days.	
1	Three	2	June 8
2	Four.......	8	June 8
3	Three	4	June 15
4	Three	14	June 19
5	Three	4	July 21
6	Two	3	July 25
7	Two	14	June 13
8	Five	7	July 16

Taking the collection as a whole their stomachs contained 92.6 percent animal matter to 7.4 percent of vegetable. Caterpillars aggregate nearly 27 percent and were found in every stomach but 7. No other element was so abundant. Beetles collectively are next in importance, with 22 percent. Of these the useful Carabidæ amount to 7.7 percent and are very irregularly distributed. All the remainder are more or less harmful species. Bugs (Hemiptera) aggregate 13.8 percent. Five families of these were identified, viz., stink-bugs, leaf-hoppers, tree-hoppers, shield-bugs, and cicadas. Ants and a few other Hymenoptera amount to 12 percent, and spiders to exactly the same. These last were mostly harvest-men or daddy-long-legs (Phalangidæ). A few miscellaneous insects amount to 6 percent, which makes up the whole of the animal food. Four stomachs of the russet-back contained remains of grasshoppers and three of these were nestlings. Carabid beetles were eaten by the young birds to the extent of 7.7 percent, which is more than three times the amount eaten by the adults. This is rather singular, for most of these insects are very hard-shelled and not at all the kind of food usually selected for young birds. Another interesting point is that all were contained in the stomachs of broods Nos. 2, 4, and 5. None of the other nestlings' stomachs held a trace of them.

The vegetable food amounts to 6.8 percent of fruit, with less than 1 percent of two or three other things. The fruit was nearly all either blackberries or raspberries, which were found in 11 stomachs, with twin berries in 1. One seed of filaree and some rubbish made up the rest of the vegetable food.

While the above affords a general idea of the food of these nestlings as a whole, there are some differences in the food of the different broods, which may be worthy of notice. The stomachs of broods Nos. 1, 2, and 6 contained no vegetable matter, as was the case with one each of broods 3 and 5. Broods 4, 7, and 8 had all eaten vegetable food, but more than four-fifths of the whole was contained in the stomachs of broods 7 and 8. The average percentage for these two broods was over 22 percent, or about three times that of the whole. Again, Hemiptera, in the stomachs of broods Nos. 1 to 7, inclusive, amount to an average of less than 4 percent, but in brood No. 8 the average per stomach is over 53 percent of the food. Spiders were found in nearly every stomach of broods 1 to 4, while the other four broods contained very few. These facts indicate that birds exercise comparatively little choice as to the exact nature of their food, but take that which is nearest to hand. With a brood of hungry young incessantly clamoring for supplies little opportunity is afforded the busy parents to select precisely the kind of insects best adapted to the wants of the young. Nature teaches that insect food and not vegetable is needed and the gaping mouths are filled with the nearest obtainable supply.

In addition to the examination of stomachs of nestling thrushes field observations were made on the feeding of the young by the parent birds. Two nests of this species in the town of Hayward, Cal., were observed during several days in June and July, 1901. Each nest was watched for two one-hour periods on as many days as possible, and the number of times that the young were fed was carefully noted.

It may be said, to begin with, that the stomachs of young birds are kept constantly full during the hours of daylight.

Nest No. 1 was situated on a tree on the bank of a small creek on the edge of an orchard. When first observed, there were three young in the nest, apparently about five days old. This nest was watched for one hour from 9.40 a. m. on June 30, and the young were fed six times, but, as both parent birds came to the nest once with food in their beaks and went away without feeding the young, it is probable that they were not quite satisfied as to the intentions of the observer. At 4.25 p. m. of the same day another hour was spent in watching the nest, and the young were fed 11 times. On July 1, beginning at 8.30 a. m., 7 feedings occurred in one hour. This nest was not again watched until July 3 at 8.40 a. m., when the young were fed 8 times during the hour. In the afternoon of the same day, beginning at 3 o'clock, 12 feedings were observed in one hour. The last observation of this nest was made on July 5, beginning at 9 a. m. In an hour 13 visits with food were noted. In the case of this brood there were 57 feedings in six hours, or an average of 9½ feedings per hour. As there were three young, each one must have been fed a little more than three times per hour.

Nest No. 2 also contained three young, but they were only about 2 days old when first visited. The first observation was on June 30, at 3.20 p. m., and the following hour the young were fed 8 times, and as the weather was cold the mother bird spent a number of minutes on the nest warming the nestlings. On July 1 another hour was spent in watching the nest, beginning at 9.30 a. m., and only 4 feedings were observed. It was, however, a cold, windy morning, and one or other of the parent birds remained on the nest all the time, leaving only when the mate brought food and took its turn brooding. The necessity for keeping the nestlings warm evidently prevented the parents from feeding them as often as customary. On the morning of July 3, although the weather was still rather cool, the birds seemed to be making up for the scanty feeding of the previous days, for they were observed to feed the young 15 times in an hour, beginning at 9.40 a. m., although they still took turns in warming the young for a few minutes at a time. In the afternoon of the same day, beginning at 4 o'clock, 8 feedings were noted in an hour. On July 5, beginning at 10 a. m., the parents were seen to feed the nestlings no fewer than 18 times, although one of them spent several minutes upon the nest three times during the hour. In the afternoon of that day 11 feedings were noted, in the hour beginning at 3.30, and 3 times one of the parents brooded the young, remaining once for six minutes. The next observation on this nest was made on July 6, during the hour from 7.50 a. m., and 12 feedings were noted. On July 7 the last observation was made, beginning at 3.20 p. m., and 11 feedings were noted. In this case there were 87 feedings in eight hours, or an average of nearly 11 per hour.

Considering both nests together, as each had the same number of young, we have 144 feedings in fourteen hours. Now at this time of year there are just about fourteen hours of available daylight, so that 144 feedings may be considered as an average day's work for a pair of parent birds, and as signifying the destruction of at least 144 insects, probably several times that number. Each of the three young must have been fed 48 times, which means that each stomach was filled to its full capacity several times during the day, another illustration of the fact that the digestion and assimilation of birds, especially of young ones, is constant and very rapid. This is further shown by the fact that when attempts have been made to raise young birds the experiments in most cases have failed because the nestlings were not fed often enough and actually starved to death. Young birds thrive best when fed a small quantity of food at short intervals rather than greater quantities at longer periods.

SUMMARY.

From the foregoing it appears that although this thrush eats considerable fruit it is not a pest to the fruit grower. Cherries seem to be the only kind eaten to any considerable extent, and in the later summer wild fruit forms a large part of its vegetable diet. This thrush does not aid in the destruction of the seeds of noxious weeds.

In its insect diet the russet-back thrush is almost wholly beneficial, as it eats but few predaceous beetles or other useful insects. As young thrushes are fed almost exclusively upon insects, and as they eat almost continuously from morning till night, they must destroy an enormous number of these harmful creatures. From our present knowledge of its food and general habits, the russet-back thrush must be considered as one of our positively beneficial birds.

HERMIT THRUSH.

(*Hylocichla guttata.*)

The hermit thrush occurs in the valley and foothill parts of California only as a winter visitant. Thus it can destroy no fruit, except perhaps olives, and thus far no complaints have been made against the species in this respect. Although the bird has not yet attracted attention by depredations upon fruit, it may be well, nevertheless, to glance at its food habits as indicated by the contents of 68 stomachs. These were mostly taken in or about the Bay region, while a few came from the southern part of the State. Examination of the contents of these stomachs shows animal matter to the extent of 56 percent and vegetable 44 percent. The proportion of the two elements varies little in the different months.

Animal food.—Hymenoptera, mostly ants, constitute the largest item of the insect food. They amount to 24 percent, and appear to be eaten regularly in every month. This record is better than that of the russet-back. Caterpillars come next in importance, and form 10 percent of the food. They seem to be eaten rather more freely in February and March than in other months, though they are taken at all times of year. Predatory beetles (Carabidæ) are noticeable by their absence, as only a few remains of them appear. Beetles of other families, all harmful species, form 11 percent of the food. Weevils, or snout-beetles (Rhynchophora), constitute more than two-thirds of these, which would seem to indicate that they are a favorite food. When we consider that the carabids live on the ground, and are the most abundant and most easily obtained of any of the common beetles, and note how few of them the hermit thrush eats, while on the other hand it eats many snout-beetles, which, living to a great extent on trees, are generally much more difficult to find, we are forced to the conclusion that the latter are a preferred food, and that they are purposely sought for. Other insects, with some spiders and a few miscellaneous articles of diet (Oniscus), amount to about 12 percent. As in the case of the russet-back thrush, one stomach of the hermit contained the bones of a salamander.

Vegetable food.—The vegetable food is made up of two principal components—fruit and seeds. The former amounts to 29 percent of the whole, and is composed of wild species, or of old fruit left on trees and vines. A few stomachs contained seeds of raspberries, which, of course, must have been old, dried-up fruit. Seeds of the pepper tree and mistletoe were the most abundant and, with some unidentifiable pulp and skins, make up the complement of fruit. The hermit thrush eats more seeds than the russet-back, but does not stand high as a weed destroyer. Seeds of all kinds amount to 14 percent of the food, but only a few are usually reckoned as weed seeds. The most abundant seed was poison oak (*Rhus diversiloba*), which was found in a number of stomachs. While this plant is not usually classed among weeds, it is really a weed of the worst description, since it is out of place no matter where it is. It is unfortunate that birds in eating the seeds of this plant do not destroy them, but only aid in their dissemination.

SUMMARY.

On the whole, the food of the hermit thrush is remarkably free from useful products, destruction of which is a loss to mankind. The worst that can be said of the bird is that it eats and scatters the seed of poison oak, but it does not do this to a marked degree.

WESTERN ROBIN.

(*Merula migratoria propinqua.*)

In most of the valleys of California the robin is a winter resident only, and would be of little economic importance did it not possess a voracious appetite, the satisfaction of which occasionally leads to lamentable results. Of its summer food we know almost nothing, except what may be inferred from its list of edibles while in the valleys, and by comparison with the diet of its eastern relative. The two birds are so nearly alike that probably in the same environment they would eat practically the same things.

In investigating the food of the western robin 74 stomachs were examined. They were taken in every month from September to June, inclusive, except May. This number is entirely too small to be used as a basis for final conclusions, but it suffices to give a hint as to the differences, if any there be, between the food of the eastern and western races. Only one stomach was taken in each of the months of September, October, and June. The others are well distributed through the remaining months. Discarding returns from the three months mentioned, 71 stomachs remain, from which a fairly reliable idea of the winter food of the robin in California may be obtained.

In the first examination we find 40 percent of animal food to 60 of vegetable. The food of eastern robins for the whole year contains 42 percent of animal matter to 58 percent of vegetable, and during the six months beginning on November 1 the amounts are: Animal 35 percent and vegetable 65 percent. If, however, our study is restricted to the three winter months, we find that the eastern robin eats 18 percent of animal food and 82 percent of vegetable, while for the same period the western one consumes 22 percent animal and 78 percent vegetable. These comparisons do not indicate essential differences in the food of the two birds. The western bird eats more insects during the winter months because on the west coast insects are more abundant and more easily obtained at that season than in the East. Confining attention, however, to the six months beginning with November, the eastern bird eats a greater percentage of insects. It is almost certain that if the material were at hand to illustrate the food of the western robin during the remainder of the year, the bird would be found to eat a much larger percentage of insects than in the six months covered by this investigation.

Animal food.—Beetles of various families are the largest item of animal food. The greater number were eaten in April, when they amount to over 54 percent of the whole food for the month. They were distributed among several families, but the most conspicuous were the snout-beetles, or weevils, which aggregated 25 percent. This is a favorable showing for the robin, for these beetles are among the most harmful insects with which the fruit growers and farmers have to contend. The average percentage of beetles for the whole six months is about 13 percent of the food. Caterpillars are next in order of abundance and amount to over 4 percent. The remainder of the animal food is made up of various insects, of which no order claims preeminence, and of a few angleworms.

Vegetable food.—The bulk of the vegetable food from November onward is cultivated fruit. After this month it gradually falls off, and very little was found in stomachs collected in March and April. With the exception of olives, the bird can obtain no fruit of value after the 1st of November, and as olives were not identified in any of the stomachs it is probable that most of the fruit consumed was worthless, having been left after the crop was gathered. The following fruits were identified: Grapes in 5 stomachs, figs in 3, prunes in 2, pear, apple, and blackberries in 1 each. Of wild fruit, pepper berries were found in 17 stomachs, mistletoe berries in 2, and fruit not positively identified in 11. Pepper berries evidently are the favorite, since not only were they found in the greater number of stomachs, but 1 stomach contained 24 and another 28 of these berries. Two stomachs contained wheat and 3 had weed seeds, but dry seeds are evidently not favorite food with the robin.

Destruction of olives.—From the foregoing the robin would not appear to do much damage, or at least not more than is amply paid for by the insects it destroys. But, unfortunately, more is to be said about its food habits, which does not redound so much to its credit. In certain years when their customary food is scarce, robins appear in the valleys in immense numbers, and wherever there are olives they eat them so eagerly and persistently that the loss is often serious and occasionally disastrous. Sometimes, indeed, it is only by the most strenuous efforts, with considerable outlay of labor and money, that any part of the crop can be saved. Fortunately, such extensive damage is not done every year, although here and there the olive crop may suffer.

There is probably no more striking example of exceptional and intermittent damage to fruit by birds than an instance which occurred in the winter of 1900–1901. In that year the olive orchards in various parts of California were invaded by immense numbers of robins, which ate the fruit and in some instances destroyed the whole crop. In orchards where persistent effort was made to destroy and drive them away they still ruined from one-fourth to one-half of the yield. Olive orchards in Santa Clara Valley especially were afflicted. Mr. Paul Masson, who owns two orchards near Saratoga, as quoted by the San Jose Mercury of January 17, 1901, says:

> In my largest orchard of about 500 trees adjoining a larger orchard of about 50 acres on the El Quito farm, which is owned by E. E. Goodrich, are thousands of robins, which are destroying all the fruit on the trees. About two months ago I estimated that my trees would yield about 4 tons of olives, but Sunday, when I visited my orchard, I found the fruit would not be worth picking.
>
> I killed some of the robins, and upon examination found as many as five or six whole olives in the crop of each bird. Besides those which the bird had swallowed whole, many olives are pecked so that they are spoiled for market. Sunday there were not less than 50,000 robins on my place, and they are equally as plentiful on El Quito farm.

Mr. Edward E. Goodrich, the owner of El Quito farm and olive orchard, quoted by the same authority, says:

> The so-called robin is a destructive pest to an olive orchard. A crop can not be saved when the migration of the robin corresponds exactly with the maturity of the olive, as it does this year, except by immediate picking, which is practically impossible, or by shooting so constantly as to prevent steady consumption. * * * In 1898 my crop was 130 tons, and should have made about 4,000 gallons of oil. Owing to the lack of rain the result was about 2,750 gallons, of the value of $11,000. Now, that crop could have been wiped out in ten days by robins if they had been here as they were this season and no shooting had been done. So far as my foreman could estimate, before the birds descended upon the place, he placed the crop at a probable 3,000 gallons, which means when sold from $12,000 to $16,000, according to prices, and that would have been utterly destroyed but for the constant shooting the last ten days.

As it was, Mr. Goodrich placed his loss on the olive crop through the devastations of the robins at 25 percent of the whole, or about $5,000, while his foreman, in an interview with the writer, estimated the loss at 50 percent. He stated also that robins were so numerous that he killed 7 in a tree at a single shot.

The San Jose Mercury also states:

> A representative of the Mercury visited the El Quito olive orchard to see what the facts were in this matter. He found a force of men picking the fruit as rapidly as possible, and he also saw thousands upon thousands of robins doing the same thing. On his way out he occasionally saw a single bird on the fence or in a prune tree, but when he reached El Quito the sky was streaked with robins flitting about and having a gala time of it. Men were scattered about through the orchard with guns, and every few minutes the report of one of these would set the robins to flying, but in an instant they would settle down again and resume their feast.

Hon. Ellwood Cooper, of Santa Barbara, one of the largest olive growers on the Pacific coast, in a letter dated January 25, 1901, says:

> The robin is a terrible pest to olives. The birds do not always appear to come to the coast. My first experience was some fifteen years ago. The olives were late in ripening. I was as late as March making oil. The robins appeared to come in by the thousands. My last orchard that year was about one-half mile in length. The pickers were at one end. I had a man with a gun at the other, but they would attack the middle, and when the gunner would reach them they would fly to the end he left. This year they have been particularly bad. My boys reported that the birds, mostly robins, picked more olives than they could. The foreman of the pickers told me that he had knocked from a tree one-quarter of a sack and went to dinner; when he returned not an olive was on the ground. I know that on the ground in one orchard where the rain had caused to fall as many olives as would fill a bushel basket, in a week not one would be seen. The robins do not seem to be able to pick the olives so rapidly from the trees, but peck at those that are commencing to dry, knock them to the ground, then get them. The birds at this writing are in all my orchards by the thousands. They do not appear every year. It has been my theory that the native berries in the Sierra some years are not in sufficient quantities for food.

In the last sentence Mr. Cooper has probably suggested the true cause of the trouble. There is a crop of olives every year and the number of robins fluctuates little, but they rarely attack olives because usually their native food abounds. Where this fails the hungry birds shift about until they find a substitute.

SUMMARY.

With the exception of such sporadic cases as the above, the food habits of the robin are for the most part of a beneficial, or at least harmless, character. In the eastern part of the country very little damage by the robin is reported, though it is one of the most abundant species. This is probably largely owing to the plentifulness of wild fruits throughout the season. The trouble in California is that the robins from an extensive region concentrate into a comparatively small area and, finding an abundant supply of palatable food, feed upon olives to the exclusion of all other food.

Were the hills and canyons of California as well supplied with wild berries as are the corresponding places in the Appalachian region, it is doubtful if such devastations of the olive crop would ever occur.

Since failure of the natural food supply of the robin is only occasional and can not be anticipated in advance, no direct safeguards against the bird's inroads are possible, though the planting of pepper and other berry-bearing trees about the orchards would materially aid in protecting the olive crop. The prompt and unsparing use of the shotgun when the emergency occurs, even though it seems to be the only practicable method to save the crop, is much to be deprecated, since the destruction of robins, which in the main are useful birds, is a loss to the community.

WESTERN BLUEBIRD.

(*Sialia mexicanus occidentalis.*)

The western bluebird has the same gentle, quiet demeanor that characterizes its relative of the Eastern States. It has not yet, perhaps, become quite so domestic as that species, but still is much inclined to frequent orchards and the vicinity of farm buildings. While the eastern bluebird usually nests either in a hole of an orchard tree or in the box specially provided for its use, the western species has not yet fully abandoned its habit of utilizing forest trees as nesting sites, and often may be found in lonely canyons or among the hills far from the abodes of man. The orchards of California as yet are hardly old enough to offer many hollow trees as nesting places of the kind so dear to the heart of our gentle friend. There is no reasonable doubt that in time the western species will become as domestic as the eastern one. A nest was found by the writer in a hollow tree in the home orchard of a ranch, only a few rods from the house. It contained six young, which would indicate that the bird is a prolific breeder, in this respect also resembling the eastern species.

The western bluebird is less migratory than the eastern and does not entirely desert the United States in winter; so its good work is continuous. As insects are active in California in every month the bird is able to support life even if there is no other food. Moreover, the insects eaten in winter count more in the reduction of these pests than do those taken after the spring broods are out. Insects that live through the winter are the stock by which the species is perpetuated, and the destruction of a few at this time is equivalent to the death in summer of hundreds or thousands.

The food of the bluebird consists of elements whose consumption is almost wholly a benefit to the farmer. Four-fifths of it is insects; only a small portion of these are useful, and these to a limited extent.

In the investigation of the food of the bluebird 187 stomachs were examined. This number is not so large as could be desired, and, moreover, was rather irregularly distributed over the year. Only one stomach was obtained in May, and only one in April, while the number for several other months are too few. Geographically they fairly well represent the fruit-growing regions of the State from as far south as San Bernardino northward to Santa Rosa. The food found in the stomachs consists of animal matter, 82 percent; vegetable, 18 percent.

Animal food.—Of the animal portion a little less than 12 percent consists of predaceous beetles (Carabidæ), which are usually reckoned as useful. There are, however, many exceptions to this rule, and since most of the species of this family are wonderfully abundant it is not probable that the bluebird does much harm by eating them. It is believed, moreover, that this record of Carabidæ is above the normal, for the one bird taken in April had eaten 90 percent of these beetles, thereby raising the average of the whole. In August, on the other hand, not one of the five birds examined had eaten a carabid. Had these months been omitted from the reckoning the average would have been reduced to about one-third of the present figure, which is probably much nearer the truth.

Other beetles amount to over 17 percent of the food, and were distributed among about a dozen families, all of them harmful, except three or four ladybirds (Coccinellidæ), which are useful.

Caterpillars evidently are a favorite food, and probably are eaten in every month, though evidence is wanting for April and May. They amount to over 17 percent of the year's food. Few of these insects are eaten in spring and early summer, many in fall and winter. As practically all caterpillars are harmful, this item of diet counts entirely in the bird's favor.

Grasshoppers and crickets, mostly the former, were eaten in every month except April, but a greater number of stomachs would probably give a different result. They amount to a little less than 24 percent of the year's food. They appear in the stomachs of western birds at a somewhat earlier date than in those of eastern species. In the Atlantic and Central States, August is preeminently the season of grasshoppers, and in that month they constitute the principal article of diet of many species of birds. The western bluebird eats grasshoppers in March to the extent of about 11 percent of its food. In June they amount to over 38 percent, and in July reach a maximum of nearly 49 percent, or nearly half of all that it eats. In September they amount to 40 percent, but decrease rapidly from that time.

Bees and wasps (Hymenoptera) are not largely eaten by the bluebird, and flies scarcely at all, as the aggregate for the year amounts to only four-tenths of 1 percent.

In the summer bugs (Hemiptera) are eaten to a moderate extent. The species belong mostly to the family of 'soldier bugs' (Pentatomidæ) or, as they are sometimes called, 'stink-bugs,' for they have a vile odor and when taken into the mouth with a berry are not agreeable to human taste. The total percentage of wasps, flies, bugs, and a few other insects is a little less than 10 percent of the whole food.

Spiders are eaten to some extent throughout the year, but never in great numbers. The greatest number are taken in February, about 6 percent. The total average for the year is 2 percent. One stomach contained the lingual ribbon of a snail.

Vegetable food.—The bluebird asks practically nothing of man in the way of vegetable food. It is evident that it is not a lover of seeds, as is the linnet, and with abundance of them at hand, eats few or none. In 2 stomachs several small unknown seeds were found, which may have been swallowed accidentally. Not a kernel of grain had been eaten. Fruit constitutes nearly the whole vegetable portion of the food, and was distributed as follows: Elderberries (Sambucus) in 19 stomachs; grapes in 12 stomachs, all in the month of October or later; blackberries or raspberries (Rubus) identified in 4 stomachs; pepper fruits in 2 stomachs; figs in 1 and mistletoe berries in 1. Besides these 9 stomachs contained pulp or skins that could be identified only as fruit. From this it appears that elderberries are the favorite fruit of the bluebird. Fortunately these are nearly always to be had in California. Most of the grapes eaten probably were waste fruit, as many of them were consumed in December and other winter months.

FOOD OF YOUNG.

Among the stomachs examined were those of several nestlings about a week old. They were of interest as showing how large a proportion of animal food is given to the young. In one brood of six the only vegetable food found was a single piece of plant stem, which was probably given accidentally with other food, and should properly be classed as rubbish. The real food consists of grasshoppers and crickets 90 percent, beetles 3 percent, and the remainder made up of bugs, caterpillars, and spiders. In another brood of four, grasshoppers and crickets constituted 97.5 percent of the food, and 1 stomach contained nothing else. The remains of 11 grasshoppers were found in one of these stomachs, and 10 grasshoppers, a cricket, and a beetle in another. The only vegetable matter found in these 4 stomachs was a single seed of Polygonum.

Besides the stomachs of the western bluebird discussed above, 14 stomachs of the Arctic bluebird (*Sialia arctica*) were obtained. They were taken in fall and winter, and, while so small a number is not sufficient for positive conclusions, it may be said that the character of the food closely resembles that of the other species in the same months.

The two species eat about the same proportion of animal and vegetable food; the animal part consists of the same orders of insects, while the vegetable part is made up of the same varieties of fruit. In short, it may be said that if there are important differences in the food habits of the two birds the evidence at hand fails to establish the fact.

SUMMARY.

It seems scarcely necessary to comment on the foregoing statements with regard to the bluebird's diet in its economic relations. That the bird is an eminently useful species is so patent that it hardly needs to be pointed out. Whatever harm fruit growers have suffered from birds, none of it can be laid at the door of the bluebird.

List of insects identified in stomachs of bluebirds:

COLEOPTERA.

Coccinella t. californica.
Hippodamia convergens.
Polycaon stoutii.
Aphodius rugifrons.
Blapstinus dilatatus.
Blapstinus sulcatus.
Blapstinus pulverulentus.
Rhigopsis effracta.
Balaninus sp.
Sitones sp.

HEMIPTERA.

Saissetia oleæ.
Sinea diadema.

HYMENOPTERA.

Messor andrei (ant).

Insects also were identified as belonging to the following families:

COLEOPTERA.

Carabidæ.
Staphylinidæ.
Coccinellidæ.
Histeridæ.
Elateridæ.
Buprestidæ.
Lampyridæ.
Ptinidæ.
Scarabæidæ.
Cerambycidæ.
Chrysomelidæ.
Tenebrionidæ.
Rhynchophora (superfamily).

HEMIPTERA.

Reduviidæ.
Capsidæ.
Lygæidæ.
Pentatomidæ.
Corimelænidæ.
Scutelleridæ.
Jassidæ.
Coccidæ.

Issued October 28, 1907.

U. S. DEPARTMENT OF AGRICULTURE

BIOLOGICAL SURVEY—BULLETIN No. 31

C. HART MERRIAM, *Chief*

AN ECONOMIC STUDY OF FIELD MICE

(GENUS *MICROTUS*)

BY

DAVID E. LANTZ

ASSISTANT, BIOLOGICAL SURVEY

WASHINGTON
GOVERNMENT PRINTING OFFICE
1907

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Assistant, Biological Survey

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LETTER OF TRANSMITTAL.

U. S. Department of Agriculture,
Biological Survey,
Washington, D. C., August 1, 1907.

Sir: I have the honor to transmit herewith, as Bulletin No. 31 of the Biological Survey, an economic study of field mice, by David E. Lantz. Field mice are so generally distributed throughout the United States and at times are so numerous in certain regions that they do serious damage to gardens, nurseries, orchards, and forests. The several species therefore possess an economic importance quite out of proportion to their size. The present bulletin gives a concise account of their distribution and general habits, the nature of the damage they do, together with methods of prevention, the best means of limiting their increase under ordinary circumstances, and of reducing their numbers when, by reason of excessive multiplication, the injuries they inflict are serious.

Respectfully,
H. W. Henshaw,
Acting Chief, Biological Survey.

Hon. James Wilson,
Secretary of Agriculture.

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AN ECONOMIC STUDY OF FIELD MICE.[a]

INTRODUCTION.

The present paper deals with the habits of the common field mice[a] of the United States, the conditions which often favor their enormous multiplication, the natural enemies which aid in their repression, and the agencies which farmers may employ to avoid losses by the animals. Small as these pests are, they inflict enormous injury upon the crops of the country. The aggregate loss to the farmers from this source averages not less than three millions of dollars annually, and in some years is much greater. The major portion of this loss is preventable, and the object of this bulletin is to acquaint farmers, orchardists, nurserymen, and others with the most practical preventive methods.

Among the more interesting facts connected with wild animals are the sweeping changes in the relative numbers of certain species to be noticed from year to year in almost every locality. Species that are abundant one season may be rare or entirely absent the next; or they may gradually increase or decrease in numbers through a series of years until disaster results from their overabundance, or the species becomes practically extinct. Sometimes wild animals increase in numbers so suddenly that the change has been likened to a tidal wave, and ignorant people have regarded the invasion as of miraculous origin. The belief that crickets, locusts, frogs, and even mice sometimes fall from the clouds is still held in many countries.

The careful observer, however, sees little mystery in the phenomena mentioned. He has studied the general habits of animals—their food, their powers of reproduction, their migrations, the checks on their increase due to natural enemies, disease, and varying climate—and consequently he attributes sudden changes in their numbers to known causes. In such changes he recognizes, especially, the influence of man, both direct and indirect, and his responsibility for interferences that greatly modify the operations of nature.

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[a] The term "field mice" applies equally well to several groups, or genera, of mice which occur in cultivated areas and meadows of the United States, but in this paper it is restricted to the most widely known group, the genus *Microtus*.

Outside the insect world the most striking examples of occasional excessive multiplication of a species are afforded by rodents. The invasions of rabbits and rats are familiar, but no rodents exhibit the tendency more forcibly than the *Microtinæ*, a subfamily which includes lemmings, voles, and muskrats. The lemmings and voles, especially, are noted for those peculiar waves of increase that astonish observers and bring disaster in their wake. The most noted example is afforded by the somewhat periodic migrations of lemmings (*Lemmus lemmus*) in Norway and Sweden.

These animals live in the higher plateaus of Scandinavia. Here during several favorable years they increase in geometrical ratio until the food supply gives out and hunger impels great hordes to migrate into the lower valleys. Once started on their journey they continue in the same general direction in spite of all obstacles. They travel in vast armies, swimming lakes and streams, living on the products of the soil, and carrying calamity to farmers. They breed on the journey, lingering only until the young are strong enough to travel or until food is exhausted. They are constantly the prey of natural enemies which gather in their wake, and are destroyed ruthlessly by man; so that in spite of an enormous natural increase, the vast army gradually melts away. Usually disease breaks out and helps to decimate them, so that as a rule comparatively few reach the final barrier to their march, the sea. After a short delay the survivors, ignorant of the nature of the barrier, plunge into the water and essay its passage, swimming until they perish.[a] The migrations usually cover a period of two years, but are sometimes prolonged to three. None of the migrating animals return to their homes, and they are entirely absent in the lower valleys until the next migration.[b]

The economic vole (*Microtus œconomus*) of Siberia performs somewhat similar migrations. Writing of it over a century ago Thomas Pennant said: "They in certain years make great migrations out of Kamtschatka; they collect in the spring and go off in incredible multitudes. Like the *Lemmus*, they go in a direct course and nothing stops their progress, neither rivers or arms of the sea: in their passage they often fall a prey to ravenous fishes and birds, but on land they are safe, as the Kamtschatkans pay a superstitious regard for them; and when they find them lying weak or half dead with fatigue on the banks, after passing a river, they will give them all possible assistance. They set out in their migration westward. From the river Pengin they go southward and about the middle of July reach Oshotska and Judoma, a tract of amazing extent. They return again in October. The Kamtschatkans are greatly alarmed at their migrations, as they presage rainy seasons and an unsuccessful chase; but on their return, expresses are sent to all parts with the good news."[a]

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[a] Prof. Robert Collett, of Christiania, Norway, records that in November, 1868, a steamer sailed for a quarter of an hour through a swarm of lemmings which extended as far as the eye could reach over the Trondhjemsfjord. (Journal Linnean Society of London, Vol. 13, p. 33, 1878.)

[b] T. T. Somerville, Proc. Zool. Society of London, 1891, pp. 655–658. Robert Collett, Journal Linnean Soc. of London, Vol. 13, pp. 327–334, 1878.

Visitations of voles have not been infrequent in the history of the Old World. The earliest records of them are in the Bible[b] and in the works of Homer, Herodotus, and Aristotle. So serious did the Greeks consider plagues of field mice that in their pantheism they had a mouse god (Apollo Smintheus), who was invoked to avert the evil.

Invasions of field mice have not been rare in Great Britain and the Eurasian continent. Blasius records serious outbreaks on the Lower Rhine in the twenties.[c] Brehm, quoting Lenz, gives an account of one in 1856 and of another in Rhenish Hesse in 1861. Brehm himself observed hordes of the animals in 1872 and 1873 on the sandy plains of Brandenburg and in the rich corn lands of Lower Saxony, Thuringia, and Hesse.[d] The chroniclers of England—Holinshed, Stow, Childrey, Lilly, Fuller, and others—record outbreaks of mice in Essex and Kent, 1581, and again in Essex in 1648 and 1660. Later plagues occurred in parts of England in 1745, 1754, 1814, 1825, 1836, and 1863–1867. Severe outbreaks took place in Scotland in 1825, 1864, 1876, and 1892, the last so serious in its effects upon the sheep industry that the British Board of Agriculture appointed a special committee to investigate it. The report of this committee[e] is the most complete and important contribution to our knowledge of field mice thus far published.

A large portion of Hungary was devastated by field mice in 1875 and 1876. In 1875 they were observed to be very numerous in certain districts, and by the spring of 1876 they fairly swarmed in cultivated fields, so that the peasants "doubted whether they had sprung from the earth or fallen from the clouds." They devoured grain, roots, and growing vegetation—corn, potatoes, turnips, and lucern. In the fall they attacked vineyards and shrubbery, and when food was exhausted, began to eat each other. They were finally destroyed by an infectious disease, which killed them by thousands.[a]

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[a] History of Quadrupeds, by Thomas Pennant, 3d edition, vol. II, p. 195, 1793.

[b] "And the cities and fields in the midst of that region produced mice and there was great confusion and dearth in the city." I Samuel, v., 6 (Vulgate version.)

[c] Naturgeschichte der Säugethiere Deutschlands, von Johann Heinrich Blasius, p. 386, 1857.

[d] A. E. Brehm, Thierleben: Säugethiere, vol. 2, p. 390, 1877.

[e] Report of the Departmental Committee on a Plague of Field Voles in Scotland, London, 1893.

In North America, up to the present time, no such calamitous invasions of field mice have been known, although occasionally one or another species increases locally to such an extent as to amount to a plague. Of even greater consequence, however, is the steady drain on agricultural products caused by these rodents over a large part of the country when present in normal numbers.

CLASSIFICATION OF FIELD MICE.

The genus *Microtus* belongs to a subfamily of *Muridæ* known as the *Microtinæ* (formerly *Arvicolinæ*). This subfamily embraces a large number of forms of small and very similar rodents which in some respects resemble true mice, but which are readily distinguished by the robust body, thick head, short ears (whence *Microtus*), and short tail, the last exceeding two-thirds of the length of the body in but one genus, *Fiber* (muskrats).

The *Microtinæ* are divided into two groups, which are commonly distinguished under the names lemmings and voles. Externally lemmings have shorter bodies than voles, and, except in one genus (*Synaptomys*), the tail is shorter than the hind foot, and the palms and soles are without distinct foot pads (plantar tubercles). The two principal genera have the nails on the thumb strap-shaped (ligulate).

Voles have bodies less stout, tails usually longer than the hind foot, and soles and palms always with distinct foot pads. The thumb nails are pointed, not ligulate. There are four genera of voles, all having representatives in the United States, of which the two more familiar are *Fiber* (the muskrats) and *Microtus* (the field mice). The other two genera are of little importance to the farmer. The present paper deals only with the genus *Microtus*.

Voles of the genus *Microtus* are distinguished from members of the other three genera by having rootless molars at all stages of their life. *Fiber* may easily be recognized by its large size, its long, laterally flattened tail, and by its having the feet modified for swimming.

There seems to be no entirely appropriate vernacular name for the mice of the genus *Microtus*. The French call them "campagnols," the Germans "wühlmäuse." English-speaking people outside the United States call them "voles." In the United States they are variously designated as "meadow mice" or "field mice," and locally as "bear mice," "bull mice," "buck-tailed mice," "mole mice," etc. "Vole" is open to the objection that it applies equally well to three other genera and may easily be confused with "mole." "Field mice" will apply as well to other genera and subfamilies of mice, while the term "meadow mice" is not broad enough to include all the species of *Microtus*.

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[a] Report on a Plague of Field Voles in Scotland, Appendix III, p. 76, 1893.

SPECIES AND DISTRIBUTION.

Field mice of the genus *Microtus* have stout bodies, blunt, rounded muzzles, small eyes, and short ears—often completely concealed in the fur. The tail is short and hairy; the soles of the feet are naked or clothed with short hairs, and have five or six foot pads (plantar tubercles). The incisors are broad and not grooved.

The molar teeth in all members of the genus, like the incisors of all rodents, grow continuously throughout the life of the animal and do not develop roots. They are prismatic in form, and the crowns show triangular dentinal spaces surrounded by lines of harder enamel. These curious enamel patterns are of great importance in the classification of the animals, as they are but slightly affected by age and wear and are remarkably constant for each species.

About 165 living species and subspecies of *Microtus* have been recognized (1904), of which about 78 are North American.[a] Eight extinct fossil species have been described, and several of the living forms also have been found fossil.

The genus *Microtus* is of wide distribution, covering practically the greater part of the northen hemisphere outside the tropical zone—America north of the Tropics, all of continental Europe, and Asia, except its southern peninsulas. Great Britain has two species, but Ireland and the principal Mediterranean islands have none. The genus is not found in South America, Africa, Australia, or the Australasian islands. While true mice (*Mus*) are found over a large part of the range of *Microtus*, they do not extend so far northward and occur much farther southward. *Microtus* finds its most southerly extension in the Old World in Palestine and the southern slope of the Himalaya Mountains; in America, in southern Mexico and Guatemala.

The range of a single species is often remarkably great. Thus the typical form of the common meadow mouse of the United States (*M. pennsylvanicus*) occurs over a large part of at least twenty-five States, from Maine to the Dakotas and southward almost to 35° north latitude. If the five subspecies (geographic races) are included, this range is almost doubled in extent. Another species, *M. mordax*, occurs in most of the high mountains from Colorado to California and from Arizona to Alaska. The meadow vole of Great

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[a] For key to the North American species and descriptions the reader may consult N. A. Fauna No. 17, Revision of American Voles of the Genus Microtus, by Vernon Bailey, 1900.

Britain (*M. agrestis*), common from the Orkney Islands to the English Channel, is also distributed over much of northern Europe. Another closely related species, *M. arvalis*, has a still wider distribution in central and southern Europe, and, strange to relate, is found in England as a fossil.

On the other hand, some of the species of *Microtus* are of limited range, a few of them being confined to the summit of a single mountain or isolated on a single small island. The beach vole, for instance, occurs only on Muskeget Island, Massachusetts, while the Gull Island vole (*M. nesophilus*) of Great Gull Island, in Long Island Sound, was of such limited distribution that grading and excavating for fortifications probably resulted in the total extinction of the species.

The several species differ greatly in size. Including the tail, some are even shorter than the common house mouse, while others are as large as a medium-sized rat. The largest species is the Florida water rat (*Microtus alleni*), whose total length is about 320 mm. (12.5 inches). The smallest American species is the dwarf vole (*M. pauperrimus*), whose total length is 115 mm. (4.5 inches). While the tail of field mice is usually very short in proportion to total length of the animal, the various species differ greatly in this particular. The males of many species give off a strong odor, much like that of the muskrat.

HABITS OF FIELD MICE.

While the food habits of the various species of short-tailed field mice are remarkably similar, their breeding and general habits differ greatly. The variety of habitats is most striking. Some species prefer high and dry ground, while others live in low, moist places. Occasionally the same species inhabits both sorts of localities. Some species live in forests, others in the open prairies. Some burrow under the ground like moles, while others make smooth paths or trails upon its surface.

Except in cold weather, nearly all species can temporarily adapt themselves to moist surroundings; but a few seem to be almost as aquatic as the nearly-allied muskrat. This is true especially of the larger species, such as the Florida round-tailed "muskrat" (*M. alleni*) and the European water vole (*M. amphibius*), both of which swim and dive with such facility that they are popularly called "water rats."

NESTS AND TRAILS.

The nests of field mice are compact bunches or globes, composed chiefly of grass blades and other dry vegetable fibers. They are placed in depressions in the ground, in shallow burrows, or supported on grass stems above the ground. In brush piles the writer has found them nearly a foot above the ground. Sometimes they are placed under flat stones or logs or under shocks of grain. The structures are so slight that a day's sunshine will dry them out after a storm, and yet they are so compact that the animals pass the coldest weather snugly housed in them under the snow.

The nests are admirably located with respect to drainage, being so placed that they are not likely to be flooded during excessive rains, and often being in depressions of mounds made by the mice, well above the general surface of the meadows.

Trails, often of great length and worn smooth by constant use, lead to neighboring feeding grounds. As far as possible they are under shelter of old grass, fallen weeds, leaves, and other material. The trails of some species are almost entirely below the surface of the ground, and short tunnels are common with most species. At intervals burrows of varying depth occur, usually but a few inches below the surface. These lead to underground nests, to the roots of food plants, or serve only for refuge from enemies.

BREEDING HABITS.

While most surface nests are for shelter only, sometimes the young, especially of swamp species, are produced in them. However, the young of most kinds are born in underground nests and are rarely seen unless uncovered by accident. They are at first hairless and blind. When discovered in the nest the mother vole slips noiselessly away, sometimes carrying the young attached to her mammæ.

The breeding season includes most months of the year, except midwinter in cold latitudes and periods of long-continued drought. The number of litters in a year thus depends on climate, and especially upon the character and length of the winter. In temperate latitudes in normal seasons from four to six litters are produced. Even the same species in different localities differs much in this particular. That the number of young in a litter varies with the different species may be inferred from the variation in the number of teats. Some species produce normally from two to four young, others from four to eight; but the variation in the same species is remarkable, and depends partly upon climate, but probably more on the scarcity or abundance of food. The largest litter recorded by the field naturalists of the Biological Survey is thirteen, the species being the dwarf vole (*M. nanus*). The period of gestation is not positively known, but probably is about twenty days. Members of the Biological Survey have recorded finding young of the American species in the nests, or females containing embryos, in every month of the year except January and February.

European testimony proves conclusively that, like the lemmings, voles at times increase in numbers abnormally, but the causes are little understood. So rapidly do they multiply at such times that the results are astonishing. Females become pregnant within a few days after giving birth to a litter, and the number of young at a time is abnormal. The published accounts of conditions subsequent to and during such periods are highly interesting.

Dr. A. E. Brehm, quoting Blasius and Lenz, states, concerning the field mice of Germany (*M. arvalis*), that in 1822 in the district of Zabern 1,570,000 were caught in fourteen days. During the same time in the district of Nidda 590,427 were caught, and in that of Putzbach 271,941. In the autumn of 1856 there were so many voles in one district between Erfurt and Gotha that about 12,000 acres of land had to be replowed because of the destruction of the first crop. On a single large estate near Breslau 200,000 were caught within seven weeks and sold to a Breslau fertilizer factory at a pfennig (nearly one-fourth cent) per dozen. Some of the vole catchers caught 1,400 to 1,500 per day. In the summer of 1861, in the neighborhood of Alsheim, in Rhenish Hesse, 409,523 were caught. The local authorities paid 2,593 gulden (about $1,000) for their capture.[a]

Louis Figuier, the French naturalist, writing of the same species, says that the female gives birth to from eight to twelve little ones three or four times in a year, and that multiplication is so rapid at times that "whole districts have been reduced to destitution by this scourge. In 1816 and 1817 the one department of Vendée experienced a loss estimated at £120,000 [nearly $600,000], caused entirely by these animals."[b]

The common meadow mouse of the United States is one of the most prolific of our species. Estimating the normal increase at six young, with four litters in a season, and assuming that there were no checks upon the increase, the results are appalling. A single pair and their progeny in five seasons would amount to nearly 1,000,000 individuals. This calculation is under the mark, since it is based on the assumption that the young do not breed until about a year old. The animals, however, mature very rapidly, and the spring young undoubtedly breed in the fall of the same year.

If a thousand pairs of field mice survive the winter in any neighborhood, the potential conditions for a vole plague are present. If, now, instead of normal reproduction, circumstances bring about a considerable increase both in the number of young at a time and in the number of litters in a season, the probability of a plague is greatly increased. Hence the farmer needs the good offices of every creature that preys upon mice, to supplement the climatic limitations upon their increase and to aid in saving his crops.

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[a] Thierleben: Säugethiere, vol. 2, pp. 387–393, 1877.

[b] Mammalia Popularly Described by Typical Species, L. Figuier, p. 445, 1870.

FOOD HABITS.

Owing to its finely chewed condition, exact determination of the food of rats and mice from stomach examinations alone is very difficult. This is especially true of the species of the genus *Microtus*, whose molars are well adapted for grinding. So complete is the mastication and subsequent maceration of weed and grass seeds, as well as roots and grains, that the cell structure is often destroyed. A fair idea of the food can be gained, however, by a study of the animal's environment, by the color of the stomach contents when bark has been eaten, the odor of wild onions when present, the presence of starch grains revealed by the microscope, or the character of the few perfect vegetable cells that remain. The bits of stems, blades of grass, and leaves of other plants left scattered along the runways are important evidence, as also are the contents of the caches of food in the burrows.

In summer the principal food of these mice is green vegetation and unripe seeds of grain and grasses. As the season advances, ripe grain and seeds take the place of the immature; and in winter bulbous and other roots are in part substituted for stems and leaves. When convenient, and green vegetation is lacking, the bark of trees and shrubs becomes a staple food. It is mainly in winter that apple orchards and young forest trees suffer from attacks of mice. It is generally supposed that such attacks are due to the absence of ordinary food; but this is not always the case, for depredations often occur during mild, open winters when food abounds. Instances also of summer girdling of trees are well attested.

Examinations of stomachs of field mice show that, besides stems, leaves, and seeds of grasses and sedges, the animals eat nearly all kinds of bulbs, tubers, and roots, and occasionally animal food such as snails and crayfish. Outside the list of grains, vegetables, grasses, roots, and barks, which are generally known as staple food of field mice, they have been found eating strawberries and other fruits; roots of wild morning-glory (*Convolvulus sepium*), sweet clover (*Melilotus alba*), and cat-tails (*Typha latifolia*); seeds of iris and primrose (*Primula parryi*); bulbs of tulip, hyacinth, and wild onion; and the tubers of the Jerusalem artichoke (*Helianthus tuberosus*).

The quantity of green vegetation eaten by a single adult field mouse in the course of a year has been calculated at from 24 to 36 pounds. When one considers in connection with this estimate the great numbers of these animals in our meadows, swamps, and forests, the total quantity of food consumed by them appears so enormous as apparently to exceed the productive capacity of the soil. A thousand mice in a meadow would require at least 12 tons of grass or other green vegetation to maintain them for a year.

That a thousand of these small animals often inhabit a single meadow is not an extravagant estimate. Indeed, that number is often exceeded. Careful estimates made in France during 1893 placed the number in one district (Bar-sur-Seine) at 10,000 per hectare (about 4,000 per acre). In 1904, in the Department of Charente, the average number per hectare (2.47 acres) was estimated at 1,350 (540 per acre). Fortunately, conditions in America appear to be less favorable to their increase, and the natural enemies of mice have not yet been exterminated to such an extent that they fail to check the excessive multiplication of the rodents.

STORING FOOD.

European naturalists nearly all agree in stating that field mice store food for winter use and that the animals hibernate during cold weather. Brehm says that the common species in Germany (*Microtus arvalis*) collects fallen haws, juniper berries, beech mast, acorns, and nuts into its burows. During the coldest weather they fall into uninterrupted hibernation, but when mild weather returns they rouse up and feed on their stores.[a] Similar statements are made of other species and confirmed by other writers.

The most noted example of provident preparation for winter is afforded by the economic vole (*M. œconomus*) of eastern Siberia, whose migrations have already been described. These animals are said to lay up large stores of food during summer—20 and even 30 pounds of fresh roots have been found in one hoard.[b] The Kamchatkans habitually rob these stores of food for their own use—a fact which accounts for the favor with which they look upon the animal.

American voles, so far as known, do not hibernate, but are active in winter even in the far north. So thoroughly has this fact been proved by observation that it seems possible that European observers may be mistaken as to the hibernation of Old World species. The habit of storing food seems to be less common in this country than with Old World species, but it is far from rare. Caches of food are often found, which show that in times of abundance the animals store away more than is needed for immediate use.

One American species, the tundra vole (*M. operarius*), exhibits in its provident habits a resemblance to the economic vole. The animal is small, inhabiting mossy tundras of western Alaska, from Cape Vancouver north to Bering Strait and up the Yukon Valley to the boundary of the British possessions. According to E. W. Nelson, it gathers stores of small bulbous roots, sometimes placing a peck or more in a single cavity just below the surface on a mossy knoll or slope. In autumn, shortly before the first snowfall, the Eskimo women and children discover these stores by means of pointed sticks. In this way considerable quantities of food are gathered, which are boiled and eaten as a delicacy. "The boiled roots have a flavor like a boiled unripe sweet potato, and are very palatable during the long winter fare of meat and fish."[a]

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[a] Thierleben: Säugethiere, A. E. Brehm, vol. 2, p. 388, 1877.

[b] History of Quadrupeds, by Thomas Pennant, vol. 2, p. 194, 1793.

THREE TYPICAL SPECIES.

I. THE COMMON MEADOW MOUSE.

Microtus pennsylvanicus (Ord.) (Pl. I, fig. 1).

The most familiar of American species of *Microtus* is the common meadow mouse (*M. pennsylvanicus*). The average measurements of adults are about as follows: Total length, 170 mm. (6.6 inches); tail vertebræ, 46 mm. (1.8 inches); hind foot, 21.2 mm. (0.83 inch). The tail is always at least twice as long as the hind foot. The fur is long and overlain with coarse black hairs. In summer the ears overtop the fur. In winter the fur is longer, of a duller color, and almost conceals the ears. The usual color above is a dark brown, against which the black hairs are not conspicuous. This shades off gradually into gray or tawny on the under parts. The feet are small, the claws on the hind feet slightly larger than those on the front. The foot pads are 6; the mammæ 8 (4 pectoral and 4 inguinal).[b]

The vast range of this species has already been given. This mouse has its natural habitat in moist meadows and grassy borders of swamps, but it habitually extends its range into neighboring cultivated fields, waste lands, and open spaces on the border of timber lands. Wherever it occurs, it is normally the most abundant rodent. Nearly all meadows are full of the animals. On parting the thick grass almost anywhere one can find the smooth trails, and where the grass is thin they are often plainly visible. After the melting of deep snow, or where the dry grass has been burned, the network of runways is especially conspicuous to the eye. In swamps the paths cross soft mud and standing water, if shallow. When green scum, composed of minute floating plants, covers stagnant water, the trails are defined across it by streaks of clear water where the animals swim from side to side in the pools. In walking across a swamp one sometimes frightens them from the shelter of tussocks and sees them swim away or run through shallow water.

In swamps meadow mice nest in burrows in dry tussocks or in bunches of grass above the surface of the moist ground. The nests are composed of grass or fibers of weeds made into balls, loose and of coarser materials outside, but compact and of finer stuff within, each having a small opening on the side near the bottom. From this opening two or more trails diverge, one usually leading into an underground tunnel which opens at some distance from the nest. Nests intended to receive the young are lined with the softest of accessible materials, often with pappus of milkweed (*Asclepias*) or cat-tails (*Typha*). Such nests are sometimes hidden under grass, brush, or other litter, but more frequently are placed in underground burrows. The normal number of young varies from four to eight, the average being about six.

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[a] Proc. Wash. Biol. Soc., vol. 8, pp. 139–142, 1895.

[b] For dental and skull characters consult N. A. Fauna No. 17, p. 17, 1900.

The trails of meadow mice are interesting subjects for study. The animals take advantage of all sorts of shelter, especially that which is close to the ground. Under fallen leaves and weeds the trails become half tunnels. Even in the open meadow they are often entirely hidden under old grass, and their presence would hardly be suspected from any surface indications. Under the favoring shelter of piles of weeds, grass, or other litter the trails made by the animals are usually more intricate than elsewhere. The accompanying sketch (fig. 1) was made from trails and nests uncovered by removing a pile of weeds.

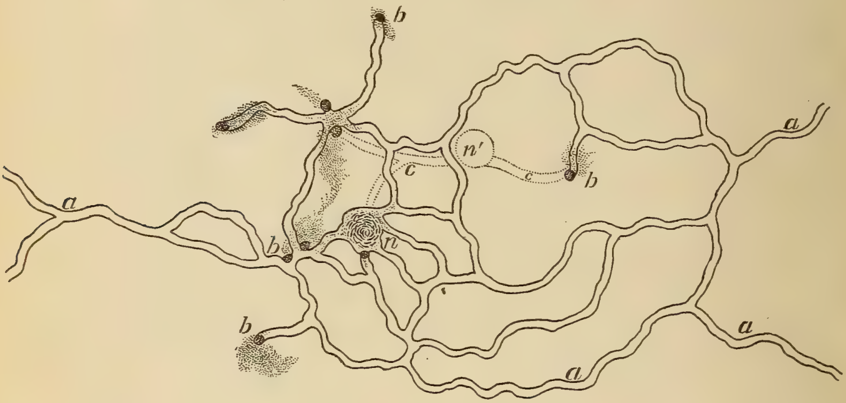


FIG. 1.—Nests, burrows, and trails of *Microtus pennsylvanicus*. *a*, Surface trails; *b*, opening to burrows; *c*, underground tunnels; *n*, surface nest; *n′*, underground nest.

The rapidity with which meadow mice work is surprising. If the nest is destroyed they choose a new site and construct a new nest of fresh materials in a single night. They work both night and day, but are especially active in the evening and early morning. They are less active in the middle of the day, especially in sunlight.

When disturbed in their homes meadow mice rush about with great celerity; but in sunlight especially they do not see well, and are almost as liable to rush blindly toward the point of danger as away from it. When cornered, they stand on their haunches and defend themselves

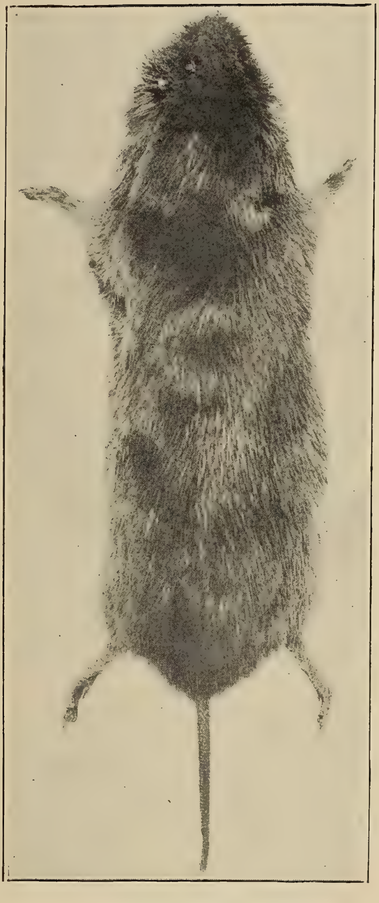


FIG. 1.—MEADOW MOUSE (MICROTUS PENNSYLVANICUS).

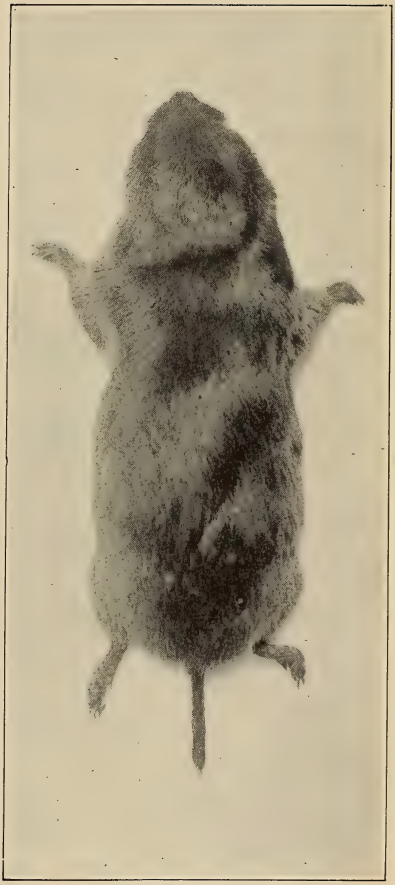
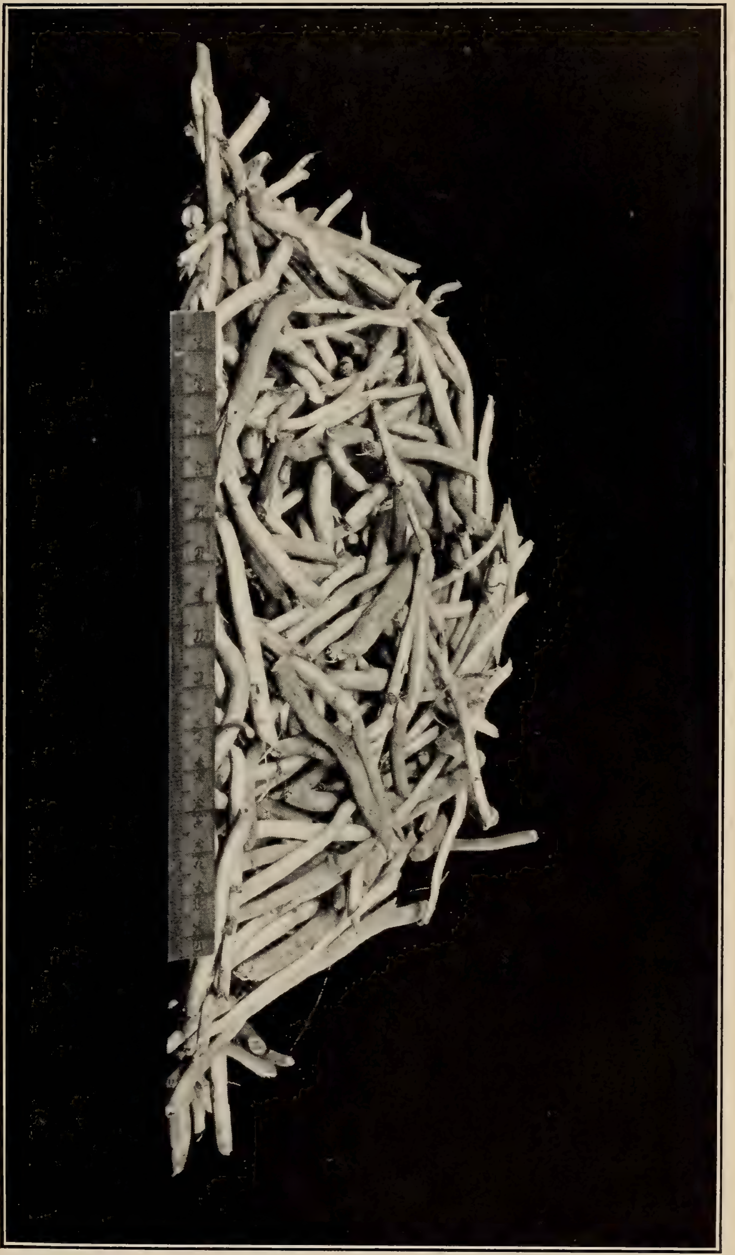


FIG. 2.—PINE MOUSE (MICROTUS PINETORUM SCALOPSOIDES).



Roots of Wild Morning-glory (Convolvulus sepium) Stored Underground by a Pair of Meadow Mice (Microtus pennsylvanicus).

[Weight of roots, 18 ounces. The scale in the illustration is 6 inches long.]

with great valor, and their sharp teeth are rather formidable weapons. Sometimes after capture one seems to give way to uncontrollable anger, and when placed in a cage with others of the same species it is eager to attack all its fellows. When two engage in combat they stand up on the hind feet and fight with claws and teeth, keeping up a constant squeaking.

Meadow mice soon adapt themselves to confinement. They eat almost any food offered and soon become tame. I find, however, that certain succulent roots, particularly those of the wild white morning-glory (*Convolvulus sepium*), are preferred to everything else. This root tastes much like sweet potato and is abundant in swamps and waste places frequented by the mice. While feeding they sit up on their hind legs and use the front paws to handle the roots, after the manner of squirrels.

This species often stores up food in underground galleries. I have several times discovered such hoards, consisting of leaves or succulent stems, but more frequently entirely of the morning-glory roots already spoken of. On March 5, 1907, I collected the contents of such a cache, which weighed 18 ounces (Pl. II).

The species under consideration never lives in barns or outbuildings. Its nearest approach to human habitations is the stackyard or piles of wood or boards left on the edge of orchards or fields near houses. In the far north a closely related species, the Drummond vole (*M. drummondi*), enters houses and barns much after the manner of the common house mouse.

The common meadow mouse is especially noted for long winter excursions from its summer abode, hiding its movements under cover of deep snow. The journeys of the animals are not suspected until the snow disappears, when the trails can be traced to great distances. They reach wheat, rye, clover, and timothy fields and often extend into orchards, nurseries, lawns, and gardens, all of which are injured by the animals. Haystacks or shocks of corn and other grain are sure to suffer if left out over winter.

The Old World species of field mice most noted for extensive ravages of crops, and including such well-known forms as *M. agrestis*, *M. arvalis*, and *M. hartingi*, are very closely related to our common meadow mouse. Many of the more prominent American species, as the Drummond vole (*M. drummondi*), the Peale vole (*M. montanus*), the dwarf vole (*M. nanus*), the Townsend vole (*M. townsendi*), and the California vole (*M. californicus*), belong to the same group. Their wide distribution brings meadow mice into contact with agriculture over great areas, and this fact, added to their prolific breeding, renders the group the most destructive one in the genus under consideration. As farming is pushed northward in the British provinces and as the cultivated areas in the West are extended under the stimulus of the United States Reclamation Service, the danger of serious ravages by meadow mice will increase rather than diminish.

II. THE PRAIRIE MOUSE.

Microtus ochrogaster Wagner.

The prairie mouse is probably second only to the common meadow mouse in the extent of its injury to crops. Outwardly it differs but slightly from the latter species. Its tail is shorter (less than twice the length of the hind foot) and its fur is coarser. In winter the pelage is grayer. The color of the underparts shades into a buff or cinnamon. The contrast between the upper and lower parts of the tail is much sharper than in the common meadow mouse. The foot pads are 5, and the number of mammæ 6 (2 pectoral and 4 inguinal). Its average measurements are about as follows: Length, 155 mm. (6 inches); tail vertebræ, 38 mm. (1.5 inches); hind foot, 21 mm. (0.82 inch).

The prairie mouse occurs in southern Wisconsin, in Indiana, Illinois, Iowa, Missouri, Nebraska, Kansas, and a part of Oklahoma. It lives in the open prairie country, mainly in the Upper Austral zone. Thus it is much more likely to invade crops than if its natural habitat were in swamps. I have found it on the borders of corn and cane fields and in native meadows, as well as in cultivated clover and alfalfa fields. It seems especially partial to fields that have been allowed to lie fallow for several seasons. The soft mixed annual grasses and weeds that partly replace the original prairie cover seem to furnish it congenial surroundings. Close grazing of the open ranges tends to drive out voles, but when ranges are not closely pastured, so that an abundance of old grass is left, prairie mice soon become numerous and appreciably reduce the amount of forage.

In the same manner the prairie mouse invades pastures and neglected orchards whenever dry grass is permitted to accumulate and remain over winter. If no crops are near, the animals subsist on wild herbage, roots, and seeds; but when cultivated crops are accessible their trails soon extend far into the tilled fields.

Nests of prairie mice usually are less bulky than those of the common meadow mouse, but are built in a similar way and in like situations. The number of young at a birth is usually three or four, rarely five or six. In ordinary seasons the first litter is born in April, but in dry, warm springs the time may be fully a month earlier. The number of litters in a season varies with climatic and other conditions. On the whole, prairie mice multiply less rapidly than meadow mice, since the number of young at a birth is smaller, and the long summer droughts and extreme winters of the interior prairies of the West often limit reproduction.

Robert Kennicott's excellent account of this species[a] states that in confinement the animals were practically omnivorous, rejecting but little vegetable food offered them. The amount of food consumed was astonishingly great. Three ate in twenty-four hours, besides other food, the germs from all the kernels of a large ear of corn. They ate raw fresh meat and drank much water.

My own observations of the prairie mouse confirm published accounts. Near alfalfa fields in Kansas I found that the green leaves of this forage plant were the favorite food. This was made evident by the trails leading to the fields and by careful stomach examinations of individuals captured.

In winter the prairie vole sometimes does enormous damage to fruit trees. In this respect it is, if possible, more destructive than the common meadow mouse; and as the fruit industry in the West grows in magnitude this species is likely to become still more troublesome. In Kansas and Missouri, during the winter of 1903–4, many orchards and nurseries were severely injured by the prairie mouse, and during the two following winters the losses were greater rather than less.

This species comes into contact with agriculture in the major portion of eight States lying in the humid section of the central Mississippi Valley. These eight States produce annually more than half the corn, oats, and winter wheat, and more than a third of the hay of the entire United States. Two closely related species of prairie mice (*M. haydeni* and *M. minor*) extend the range of this group on the plains to the west and northwest. Here they are abundant in sections where barley and spring wheat are important crops. The possibility of serious crop damages from prairie voles is, therefore, especially great.

III. THE PINE MOUSE.

Microtus pinetorum scalopsoides (Aud. & Bach.). (Plate I, fig. 2.)

This pine mouse, called also the mole-like vole, has a wider distribution than the typical southern pine mouse (*M. pinetorum*), and therefore is chosen as the representative of the group. The following account of its habits applies equally well to all pine mice.

This animal has the wide, flat skull, the short tail, the small ears, and the short, dense, glossy brown fur characteristic of all the pine mice. The colors, however, are less glossy and the size somewhat larger than in typical *M. pinetorum*. The claws are well developed; foot pads 5; mammæ 4 (2 pairs of inguinal). The average measurements of three New York specimens, as given by Bailey, are as follows: Total length, 125 mm. (about 5 inches); tail vertebræ, 20 mm. (0.78 inch); hind feet, 16.3 mm. (0.64 inch).[a]

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[a] The Quadrupeds of Illinois Injurious and Beneficial to the Farmer. Patent Office Report: Agriculture, 1856, pp. 97–102, 1857.

Owing to their peculiar habits, pine mice are not so well known as are meadow mice. Their natural habitat is the forest, although they are by no means restricted to pine woods or forested areas. While often inhabiting pine woods and the edges of adjacent fields, they live also in forests and copses of deciduous trees, usually on uplands.

The life of pine mice is largely spent in underground tunnels, which so closely resemble those of the mole that generally they are mistaken for the work of that animal. The ridges of loose soil over the tunnel are exactly like those thrown up by the mole, but the inner diameter of mouse tunnels is less. When moles and pine mice live in the same vicinity, the mice often use the runways made by the moles. It is this habit that has helped to bring moles into disrepute with farmers, who blame them for damages inflicted upon potatoes and other crops by pine mice.

In marked contrast with the pine mouse, the mole (genus *Scalopus*) is almost exclusively carnivorous, eating mainly earthworms and insects. While it sometimes cuts off the roots of growing plants when they interfere with its tunneling operations, it apparently eats no roots. Stomach examinations of moles show that they eat a very small percentage of vegetable matter, and this mainly waste corn or other grain previously softened by long contact with wet soil. On the other hand, pine mice eat little insect food, if any, and are largely consumers of vegetable substances. Nearly always when moles are charged with destroying root crops, the real culprits are pine mice.

Thin, open woodlands used for pasture, and thickets along the edges of forests are favorite resorts of pine mice. Like nearly all voles, they prefer moist soil, but it must also be loose and somewhat sandy. From their intricate tunnels under the leaf mold frequent burrows descend into the soil. Some of these burrows are utilized as nesting places. Nests are built also at the surface of the ground, under fallen logs, brush heaps, flat stones, fences, or other shelter.

The number of young at a birth evidently averages less than is usual in the genus *Microtus*, as is shown by the small number of mammæ. Observations as to the number of litters in a season seem to be lacking, but the rate of reproduction is probably less in the pine mice than in any other American group of field mice. Blasius says concerning *M. subterraneus* of Europe, that "it produces five or six times a year three to five young, which are blind for ten days after birth;"[b] and this statement is probably true, with slight modification, for all the species of the group. To compensate for slower multiplication, their liability to attack by natural enemies is much less, owing to their underground existence; so that within their range pine mice are about as abundant as other field mice.

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[a] N. A. Fauna No. 17, p. 64, 1900.

[b] Naturgeschichte der Säugethiere Deutschlands, p. 390, 1857.

Quick and Butler, writing of the food habits of the pine mouse in Indiana, state that it lives upon the tender roots of young hickories, the young sprouts of white clover, the fruit of the red haw, and the tuberous roots of the wild violet (*Viola cucullata*). The writers found all but the fruit buried, some in deposits of a gallon in a burrow, and the caches sometimes extending 18 inches below the surface of the ground. Violet roots predominated in these stores.[a] Kennicott also states that pine mice store acorns and nuts in burrows for winter use. Blasius and Brehm both state that the European species (*M. subterraneus*) prepares such stores. While personally I have never found such deposits, it is probable that our species have this habit to an extent greater than is generally known.

From their homes in woods and thickets pine mice invade fields, orchards, nurseries, dooryards, and gardens, passing always through underground runways. Living in concealment, neither their presence nor the injury they inflict is suspected until the latter is past remedy. Bulbs, planted hopefully in autumn, appear not at all in spring, or only in the shape of sickly plants whose life substance has been gnawed away. Nursery and orchard trees here and there put forth no leaves, and an examination of the roots discloses the nature of the damage.

Potatoes, sweet potatoes, carrots, beets, and other vegetables are eaten by pine mice, both while growing and when stored in pits or lying in piles in the field or garden. Potatoes partly matured or left long in the ground after maturity are eaten, and the injury is attributed to moles, because tunnels supposed to be the work of moles lead to the place of damage. I have investigated numerous cases of such injury and have invariably found either that the tunnels were made by pine mice, or, if mole tunnels, that they were frequented by mice. Traps set in the tunnels at the potato hills captured pine mice, and the starchy material found in the stomachs of those caught proved that they, and not moles, had been eating the potatoes.

Pine mice occur in central and southern Europe, in the eastern United States, and in a limited part of eastern Mexico. Those in the United States occur chiefly in the Upper Austral zone. The typical species (*M. pinetorum*), with bright russet-brown color and glossy mole-like fur, is found only in parts of Georgia, South Carolina, and southern North Carolina. In the last-named State it grades into the subspecies *scalopsoides*, which is much more widely distributed, ranging northward to southern New York (Hudson Valley and Long Island) and westward to Illinois. West of the Allegheny Mountains it occurs mainly north of the Ohio River, except in West Virginia.

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[a] American Naturalist, vol. 19, p. 116, 1885.

The bluegrass vole (*M. p. auricularis*), a form with ears overtopping the fur, which is dark and glossy, occurs in southern Indiana and in Kentucky, Tennessee, Mississippi, and Alabama. It has been taken in northeast Texas also, so that its range probably extends through southern Arkansas and connects the two areas.

The woodland vole (*M. p. nemoralis*) is the largest form of the pine vole in America, and has longer and less glossy fur than the forms east of the Mississippi. Its color is deep chestnut, darker than typical *pinetorum*, but lighter than *scalopsoides* or *auricularis*. It occurs in wooded parts of southern Iowa, eastern Nebraska and Kansas, and in Missouri, northern Oklahoma, and Indian Territory.

Pine mice differ greatly in habits from the other species of *Microtus*. All the American representatives of the group have similar habits, and the injury they do to crops is little less in extent than that inflicted by meadow mice and prairie mice.

DAMAGE BY FIELD MICE.

While field mice of the various groups differ but little in the nature of their food, the circumstances under which they injure crops vary. Meadow mice invade cleanly cultivated fields only under the shelter of snow. Hence they do most damage in years of great snowfall. Although prairie mice commit greater depredations under cover of snow than in open seasons, their attacks upon crops are far less dependent upon snowfall than those of meadow mice. Pine mice work in the shelter of their own burrows; hence their injuries to plants are quite independent of the amount of snow.

DAMAGE TO MEADOWS AND PASTURES.

Complaints of damage to meadows and pastures by field mice have been increasing in recent years. Usually the injury is confined to small areas, which the animals attack from the shelter of snowdrifts or old grass. Under cover of these, the animals eat the succulent crowns of clover and other grasses; and when the snow lies for several weeks the crops over large areas are often completely ruined. Sometimes whole fields of red clover are so badly damaged by mice that they have to be replowed in the spring and planted to other crops.

Damage to permanent, or uncultivated, meadows is usually more serious, as the mice breed and multiply throughout the field and, under cover of the growing crop of leafy stubble, devour and destroy throughout the year. Occasionally, however, actual benefit may result from their thinning the grasses and stirring the soil about the roots. Thus, after the vole plague in Scotland in 1892, the farmers reported that the pastures were better than before; but the improvement by no means compensated for the losses caused by the impaired pasturage of the two preceding years.

When mice are abundant during the growing season, the quantity of grass they destroy is great, more being cut down and left upon the ground than is actually consumed. In winter hay in stacks is injured by field mice, and instances are known in which large stacks were so badly damaged that in the spring little or no salable hay remained.

DAMAGE TO GRAINS AND FORAGE.

Growing grains—wheat, oats, barley, rye, and buckwheat—are destroyed by field mice. Attacks begin with the sprouting grain, and, in the case of fall sown wheat and rye, continue during the entire winter. However, when only the blades of the plants are eaten this winter consumption has but little effect upon the amount of grain subsequently harvested. Much greater damage is done when the grain is nearly mature, as stalks are then cut down. After the grain ripens, devastation by mice continues until after harvest, when the animals attack the shocked grain and even the stacks. The total amount of injury by mice depends both on the number of the animals present and on the length of time the grain is left in shocks. In these artificial shelters mice are perfectly at home and multiply with great rapidity, so that within a few weeks a pair and their progeny may totally ruin an entire shock of wheat or oats.

As nearly all farmers know, field mice destroy corn, Kafir corn, and cane, whether stored in shock or in pile. The annual destruction both of grain and of forage throughout the country is enormous, although accurate statistics of losses are not available. Of course, not all the injury is done by short-tailed field mice. White-footed mice (*Peromyscus*), pocket mice (*Perognathus*), harvest mice (*Reithrodontomys*), and ordinary house mice (*Mus musculus*) also are concerned in the damage. Throughout the country the brown rat (*Mus norvegicus*) and in the Southwest the cotton rat (*Sigmodon*) are serious field pests. The several kinds of field mice, however, partly because of their wide distribution, but mainly because of their great abundance, are the chief offenders in northern fields.

Grain and forage in stacks are often injured by field mice. In view of the losses to which stacked and stored grain is subject, it is a question whether the farmer who hastens to market his crop is not, on the whole, a gainer over his neighbor who waits for more favorable prices.

DAMAGE TO GARDEN CROPS.

Field mice do much injury in market and other gardens, attacking planted seeds in the open garden, hotbed, or cold frame. Pine mice are the chief offenders in inclosures, sometimes working their way even into greenhouses, where they attack bulbs and tender growing plants, as well as all kinds of seeds.

Field mice injure early peas and other vegetables growing in open grounds, and pine mice often destroy potatoes in the ground. In the fall vegetables piled on the ground or stored in pits are liable to attacks. Among these are potatoes, beets, turnips, carrots, parsnips, cabbage, sweet potatoes, and especially celery. Apples, pears, and other fruits are eaten also.

In parts of eastern Maryland pine mice have recently (1907) been quite destructive to melon and cantaloupe crops. The animals destroy the seed and eat the roots of the plants during the growing season. The injury was greatest on sandy lands which had not been plowed before planting, but had been smoothed with a drag, leaving the mouse tunnels below undisturbed. In some fields seed had been planted three times, but by the middle of July all hope of a crop had been abandoned.

DAMAGE TO SMALL FRUITS.

Blackberries, raspberries, grapes, currants, gooseberries, and strawberries are often badly damaged by field mice, and when the animals are abundant whole plantations are ruined. Strawberries are especially liable to injury because of winter mulching and also because the plants themselves furnish excellent food and shelter for the animals.

Fallen leaves in autumn and snow in winter drift and collect along rows of blackberry, raspberry, gooseberry, and currant bushes and furnish cover for mice, which work along the rows and girdle the green stems; and when dead canes are left uncut and weeds are permitted to grow up among them, the resulting tangle adds much to the liability of attack. Winter mulching of small fruits also increases the danger, and if practiced the utmost care should be taken to clean surrounding areas.

DAMAGE TO NURSERY STOCK.

In many sections of the United States and southern Canada nursery stock is injured by field mice. The actual loss varies from year to year and is difficult to estimate. Occasionally the havoc has been so complete that few marketable trees remained. It was estimated that during the winter of 1901–2, nurserymen in the vicinity of Rochester, N. Y., sustained losses amounting to $100,000.[a]

Damage to standing nursery stock is done usually under cover of snow, and hence is greatest in seasons of deep snows that remain long upon the ground. In addition to girdling trees above the surface of the ground, meadow mice sometimes burrow beside the trunk and attack the roots (Pl. III, fig. 2). Pine mice usually begin their

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[a] New York Sun, April 27, 1902.

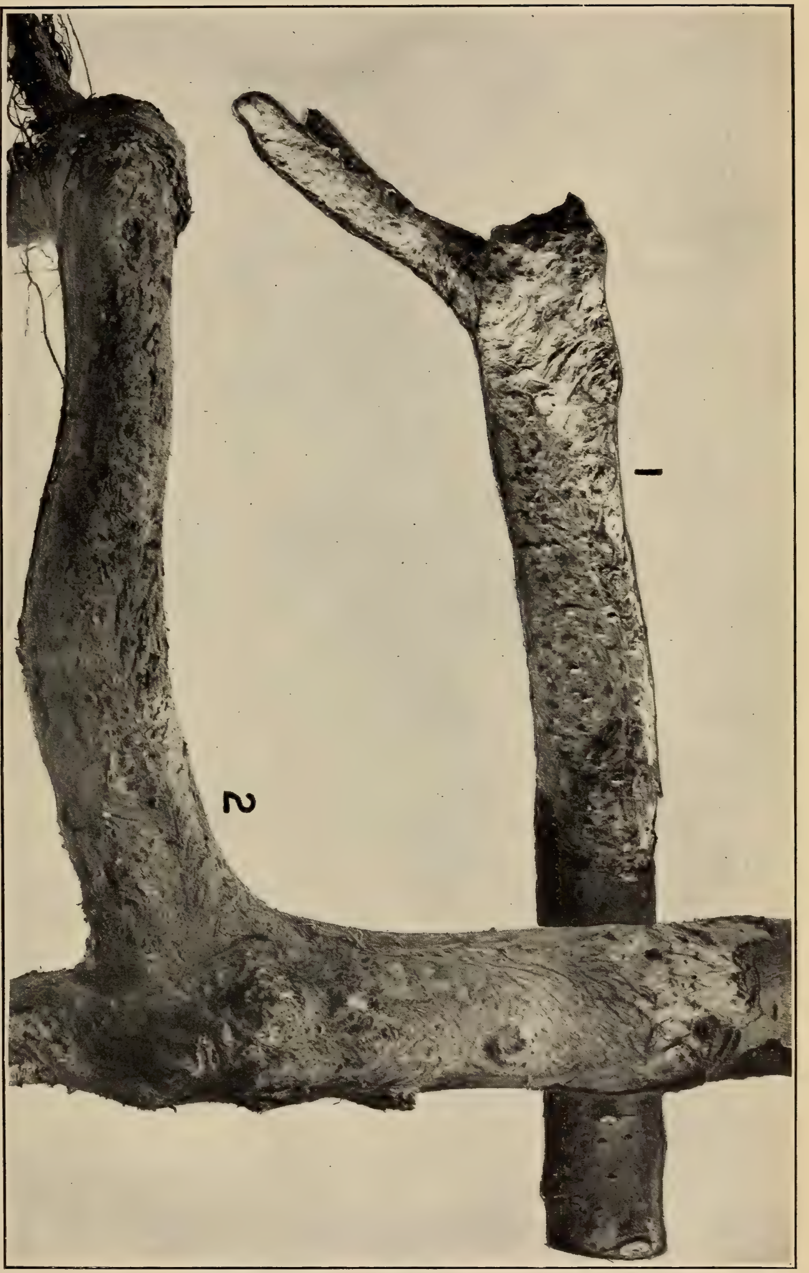
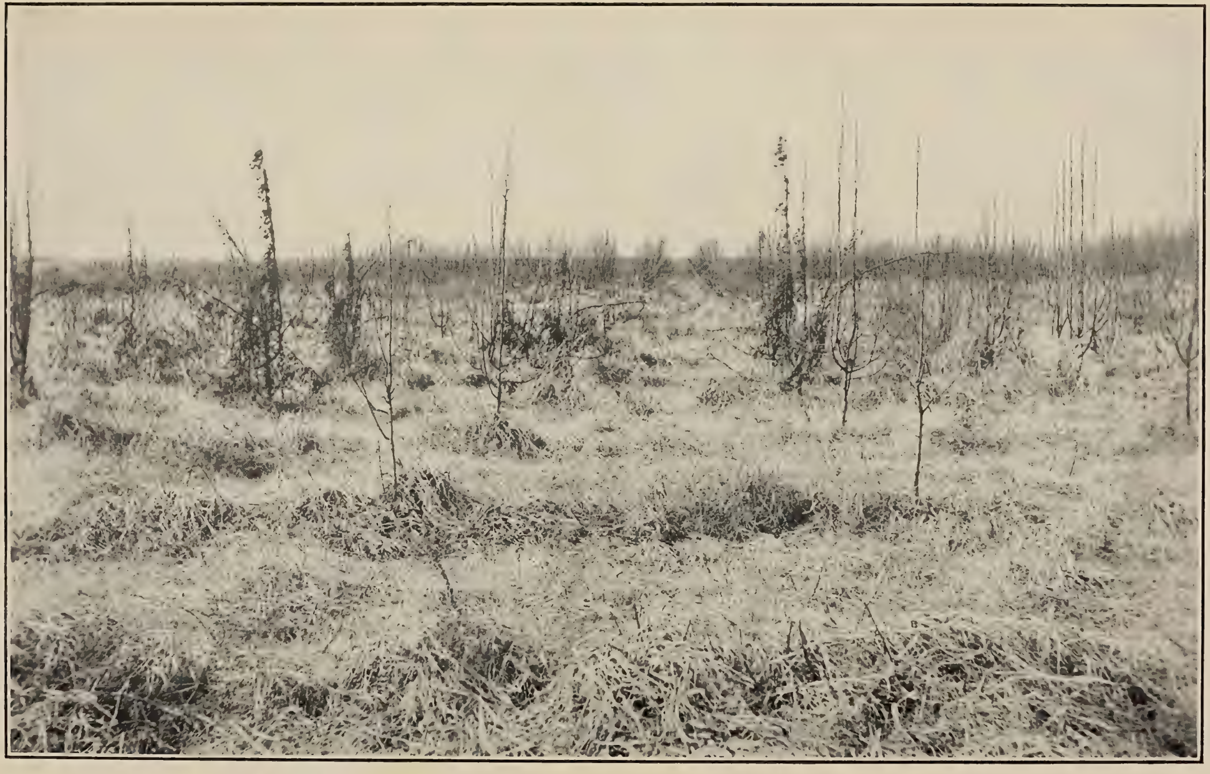


FIG. 1.—YOUNG APPLE TREE EATEN BY PINE MICE. FIG. 2.—YOUNG APPLE TREE EATEN BY MEADOW MICE.



A NEGLECTED YOUNG ORCHARD IN WINTER, WHERE MEADOW MICE RUN RIOT.

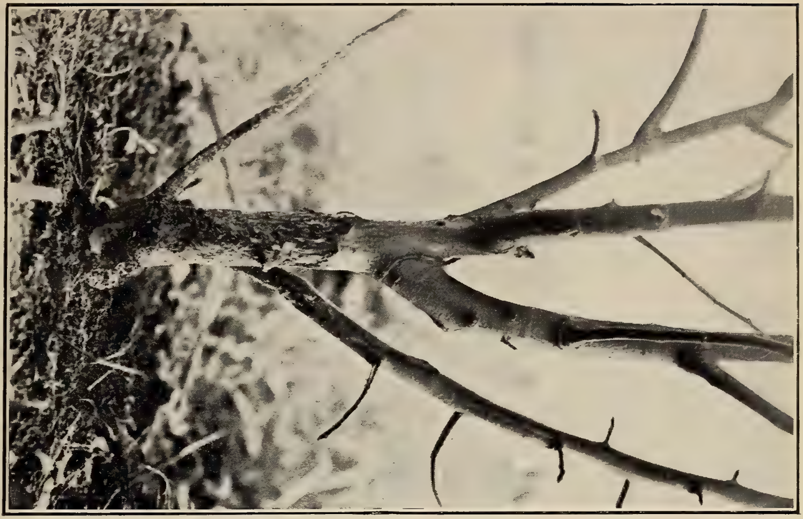


FIG. 1.—PEAR TREE INJURED BY MEADOW MICE.

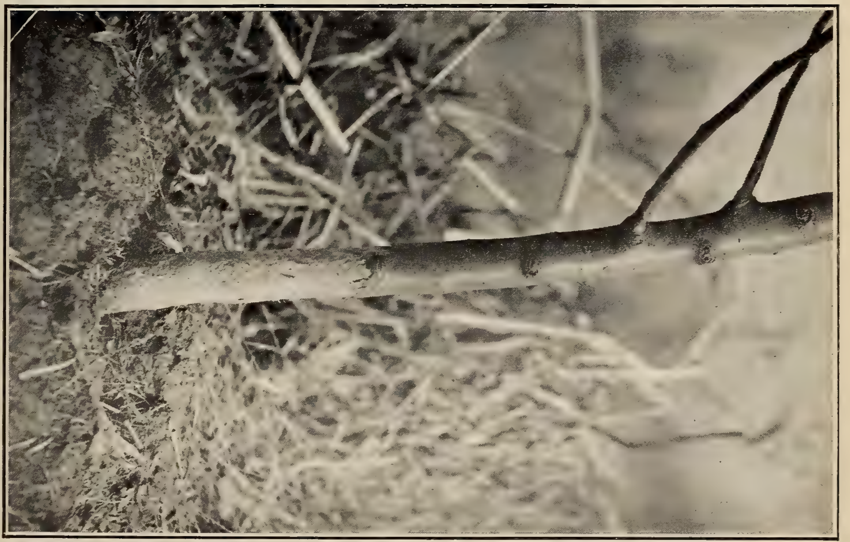


FIG. 2.—APPLE TREE INJURED BY MEADOW MICE.

attacks below the surface and except under cover of snow rarely extend them above ground. They sometimes consume the entire roots of small apple trees so that only the trunk is left (Pl. III, fig. 1). Experienced nurserymen prevent serious injury to standing stock by clean cultivation. Stock that has been taken up in the fall and "heeled in" or kept in storage pits is, however, liable to attack, especially if covered by straw, leaves, or other litter. Hence for protection from freezing a loose covering of soil is better than litter. Winter seed beds of conifers, oaks, and nut-bearing trees are often attacked by field mice and need to be carefully protected from them as well as from white-footed mice (*Peromyscus*). Small pine trees in the nursery also are liable to injury, since their low branches usually furnish cover for mice.

Among the nursery stock injured by field mice are apple, pear, quince, plum, peach, cherry, crabapple, sugar and Norway maple, chestnut, black locust, Osage orange, sassafras, alder, white ash, mountain ash, various oaks, cottonwood, willow, pine, and wild cherry trees; also blackberry, raspberry, rose, currant, and barberry bushes, as well as grape vines. In the Arnold Arboretum, Jamaica Plain, Mass., during the winter of 1903–4, meadow mice destroyed thousands of trees and shrubs, including apple, maple, sumac, barberry, buckthorn, dwarf cherry, snowball, bush honeysuckle, juniper, blueberry, dogwood, beech, and larch. Plants in nursery beds and acorns and cuttings in boxes especially were harmed.[a]

INJURY TO ORCHARDS.

Trees transplanted from the nursery into the orchard are in more danger from field mice while the outer bark is green and tender, but there are instances in which trees 5 and 6 inches in diameter have been attacked and killed by them. Most farmers are inexperienced as orchardists, and plant fruit trees only for family use. Engrossed in the production of other crops, they often neglect the orchard and permit annual grasses or weeds to grow up, which afford cover for mice. Often, too, clover or orchard grass is sown in the orchard as a covering for the ground, and the heavy growth left for winter mulch is augmented by fallen leaves. Under such conditions it is not strange that mice injure the trees. It is remarkable, indeed, that so many orchards escape injury. That they do so may in part be attributed to the fact that they are often near dwellings, where hens scratch and cats prowl.

Attacks upon orchards by mice are not always accomplished under cover of snow, nor are they confined to winter. They frequently occur in summer, often in September. During the winter of 1905–6 a small orchard of apple and pear trees near Washington, D. C., was under observation from October to April. Attacks by meadow mice began in the early fall, possibly in August. They were continued during every succeeding month, being greatest during two short periods of snow. Independent of snowfall, they were greatest in mild and least in cold weather. A few trees had no weeds or grass near the trunks, and these escaped injury. The neglected condition of this orchard appears from a photograph (Pl. IV) taken January 24, 1906. Adjoining the orchard was a tangled thicket on low, moist ground, in which meadow mice were abundant.

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[a] Boston Transcript, April 16, 1904.

On March 16, 1906, I found that of 380 apple trees, 164, or over 43 percent, were ruined, being completely girdled, some to a height of 8 to 10 inches above the ground. Thirty-six others, nearly 10 percent, were less badly injured, while 180, or 47 percent, apparently, were uninjured.[a]

Of 200 pear trees in the orchard 50 were more or less seriously damaged. The injury to these was inflicted early in the fall.

The nature of the damage to individual trees in the orchard is well shown in Plate V.

INJURY TO FOREST TREES.

As an example of the danger from field mice to which plantations of forest trees are exposed, the following is cited: In 1813 and 1814 young plantations of trees in Dean and New forests, England, were greatly damaged by mice, probably *M. agrestis.* The damage was to planted acorns, two-thirds of which were destroyed, and to holly, oak, and chestnut trees, some of which were 5 years old. Not only were the trees girdled above the surface of the ground, but often the roots also were gnawed through. The land was covered with long grass, ferns, etc., which furnished abundant shelter for voles.[b] During the winter of 1813–14 more than 30,000 mice by actual count were destroyed in Dean Forest and 11,500 in New Forest. It was calculated that the total killed by all the agencies employed was probably double these numbers. The total number of voles killed in both forests during the outbreak was estimated at 200,000.[c]

In the past, American forestry has concerned itself chiefly with efforts at conservation, but forest extension has progressed far enough to enable us to judge of the extent of injury that field mice are likely to inflict upon new plantations. The experience in the Arnold Arboretum, already referred to, is probably an example of what may be expected.

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[a] On June 22, 1907, the number of apple trees alive in this orchard was 226. The dead trees numbered 154, many of which had succumbed to their injuries during the spring of 1907. The trees were thoroughly sprayed with lime-and-sulphur wash in November, 1906, and although many meadow mice and some rabbits were present, none of the trees were attacked during the succeeding winter.

[b] Lord Glenbervie's Account, Zool. Journ., vol. I, pp. 433–444, January, 1825,

[c] Bell's History of British Quadrupeds, p. 325, 1874.

Dr. C. A. Schenck, forester of the Vanderbilt estate, Biltmore, N. C., in a recent communication to the Biological Survey, states that plantations of locust and black cherry suffer badly from the girdling of mice, "especially the locust, which are killed outright, usually the best specimens." And he adds, "Plantations of acorns, chestnuts, and hickory nuts are rendered impossible because of ravages of mice."

In our native forests the injury to young trees by mice has usually been unnoticed or disregarded; but hereafter, as more attention is given to forest extension, a corresponding increase in interest in mice as enemies of forest trees may be expected.

DAMAGE TO PARKS AND LAWNS.

Field mice destroy bulbs, perennial herbaceous plants, woody shrubs, and ornamental vines. To name all the kinds subject to attack is unnecessary, as but few are immune. The animals invade botanic gardens and public parks as well as private grounds. In the public parks of Hartford, Conn., during the winters of 1904 and 1905 much damage was done, especially to common laurel (*Kalmia latifolia*) and various thorns (*Cratægus*). Rosebushes and the crowns of hollyhocks are often attacked. Pine mice usually are responsible for the injury to bulbs—tulips, hyacinths, crocuses, etc. Often the straw or other litter used to protect tender plants furnishes shelter for the animals. Hedges, while often subject to injury from voles, also afford protection under which the animals gain access to ornamental plantations.

During the winter of 1904–5 pine mice invaded dooryards near Lanham, Md., and destroyed many plants. In one case 50 choice hyacinths and tulip bulbs in a bed were badly eaten, so that only 4 or 5 sickly plants came up in spring. In an adjoining dooryard, in the spring of 1907, the animals girdled a considerable number of young white pines (*Pinus strobus*) and ate the roots.

STUDIES IN AN ORCHARD.

In December, 1903, I examined a large orchard in Marion County, Kans., where field mice were causing much damage. As the case of this orchard is in many respects typical, details of its treatment will be given. The orchard comprised 480 acres and contained about 26,000 trees, mostly apple, eight to ten years transplanted. The trees averaged about 4 inches in diameter, but many measured 5 or 6 inches. The majority were headed low, their outer drooping branches touching the ground (Pl. VI, fig. 1). In the spring of 1903 corn had been planted by listing it in the open spaces between the rows of trees; but owing to an unusually wet summer, the crop had been abandoned, and sunflowers and other weeds and grasses had made a luxuriant growth throughout the orchard. Over much of the area, apparently, no attempt had been made to cut down the weeds; and where they had been mowed they had been raked into piles and not burned or removed.

In this neglected orchard field mice—the prairie vole—had found a congenial home. Already abundant in 1902, they bred plentifully in the open fall of that year and in the early warm spring of 1903. The ensuing moist summer also was favorable for continued reproduction, and by the fall of 1903 they were present in hordes. All the orchards of the neighborhood—a comparatively level upland prairie—had been neglected and all were invaded by mice; but the one above mentioned was the largest and most neglected, and therefore it suffered most severely. By December 18, the date of my first visit, mice had wholly or partially girdled at the surface of the ground fully 5,000 apple trees and had denuded of bark many of the low branches. The owners of the orchard, thinking that none of the trees could survive the injuries, then estimated their loss at from $25,000 to $30,000.

Examination showed that the ground everywhere was honeycombed by mouse burrows and tunnels to a depth of 3 or 4 inches, and that the surface was almost covered by a network of runways of the prairie vole. Upon digging into the burrows at the base of apple trees I found many twigs, 4 to 6 inches long, that had been entirely stripped of bark and left lying in little piles. I had no difficulty in finding where the twigs had been severed from low-growing branches and the tips of sprouts, and in distinguishing, by the smaller tooth marks, the cutting done by mice from that done by rabbits. Whether the twigs had been first stored and afterwards fed upon in cold weather I was unable to determine, for I found none with bark remaining upon them. Probably they were carried to the burrows merely for leisurely but immediate consumption.

Contrary to the usual habits of voles in our Northern States, this injury had been done during mild weather. Up to December 18 the season had been warm and open. No snow lay on the ground for more than twenty-four hours. Ordinary food, such as grass, seeds, and grain, was abundant, so that the only explanation for the injury to trees seems to be the vast numbers of voles present and their preference for a partial diet of bark.

Voles, however, were not the only animals abundant in the orchard. Rabbits, both cottontails and jacks, were there in great numbers, and

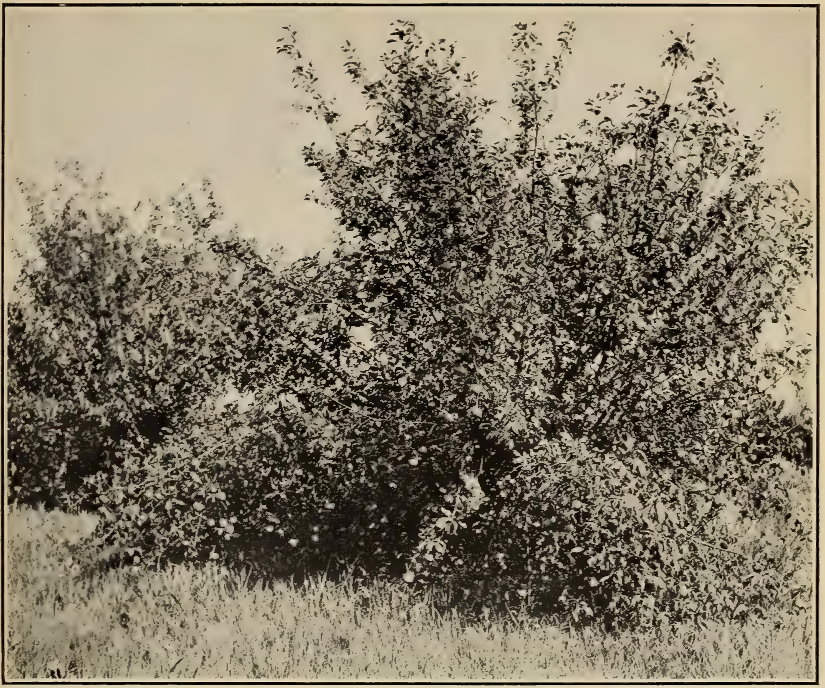


FIG. 1.—LOW-HEADED APPLE TREE IN A KANSAS ORCHARD.

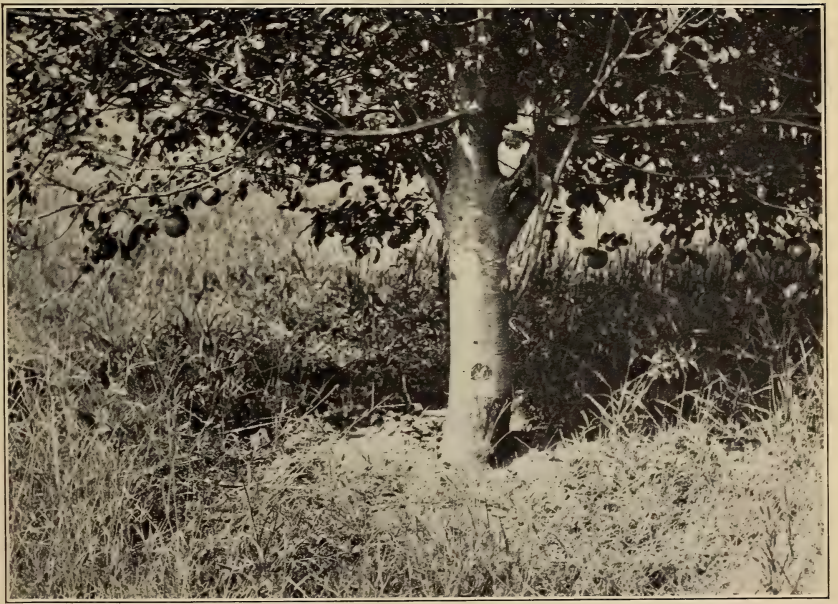


FIG. 2.—APPLE TREE RECOVERED AFTER INJURY BY MICE.

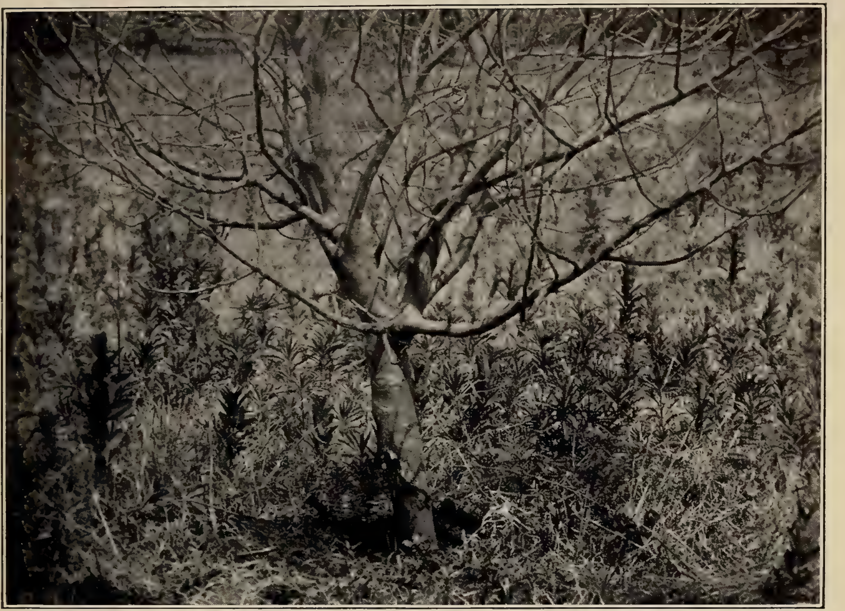


FIG. 1.—APPLE TREE KILLED BY PRAIRIE MICE.

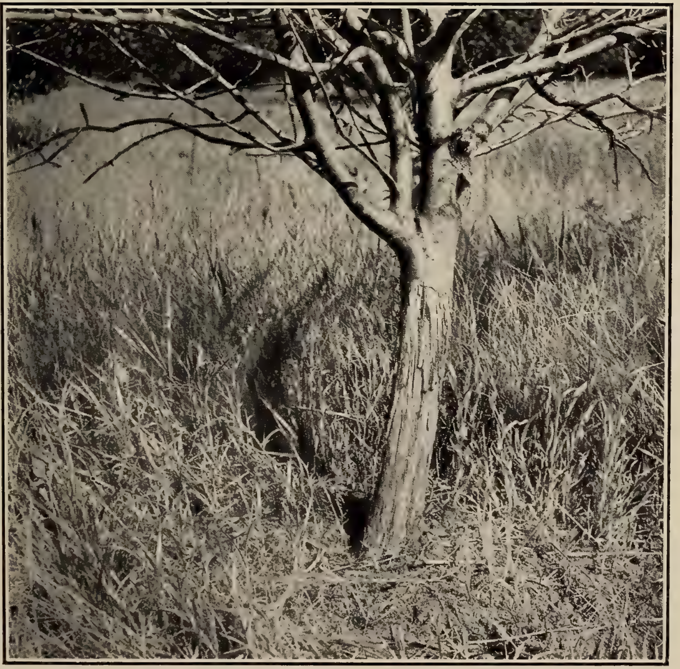
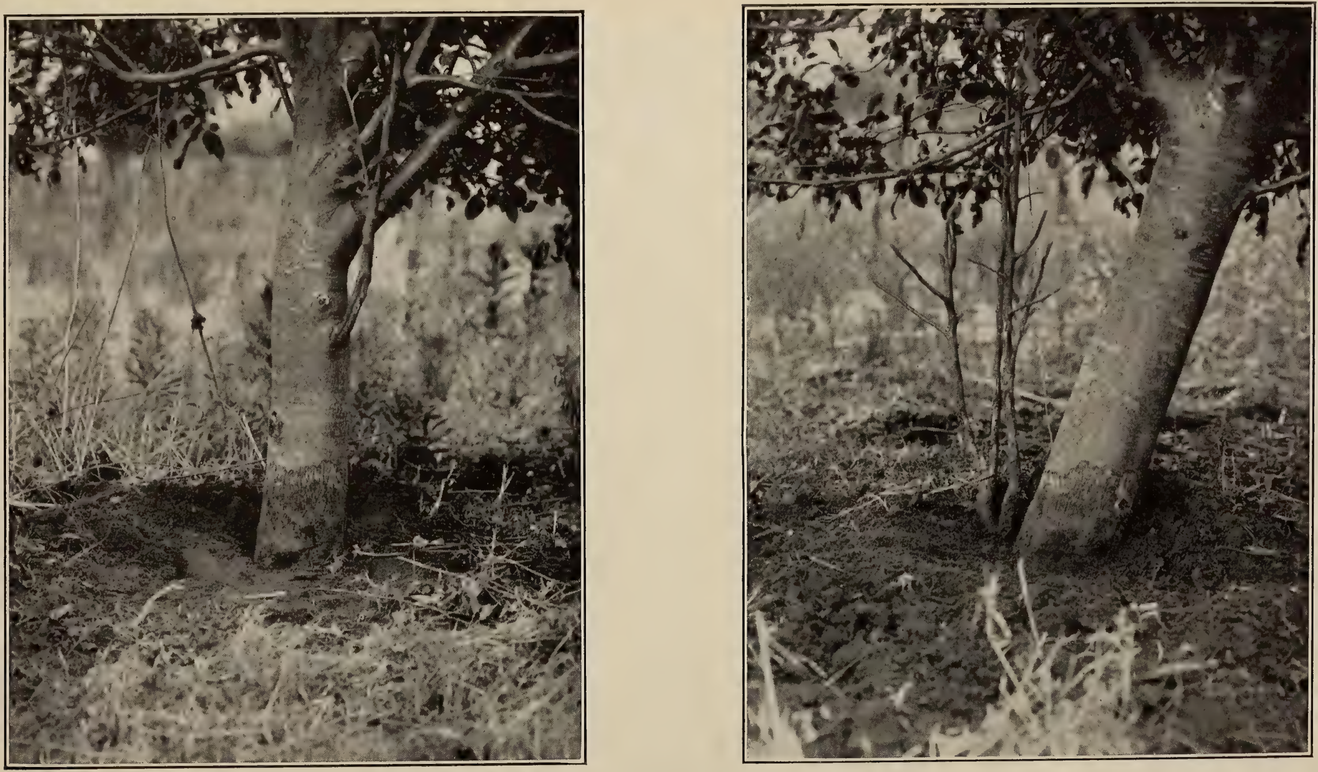


FIG. 2.—APPLE TREE KILLED BY RABBITS.



APPLE TREES 5 INCHES IN DIAMETER, GIRDLED BY PRAIRIE MICE (MICROTUS OCHROGASTER).

[Trees saved by heaping up soil about the trunks to cover the injury.]

already had begun to eat the bark on the trunks of some of the trees and on the low limbs, and to cut the tips of branches and sprouts within their reach. Later, when cold weather set in and snow covered the ground, they also seriously damaged the trees.

White-footed mice (*Peromyscus michiganensis*) were especially numerous, but stomach examinations of individuals captured revealed no evidence that they had eaten bark of trees. Skunks, short-eared owls, and marsh hawks were common, no doubt attracted to the vicinity by the abundance of mice. From the large number of partly devoured dead mice found in the burrows during poisoning operations, I had reason to think that shrews (*Blarina brevicauda*) also were abundant. Of course living voles helped to devour the dead.

Previous to my visit a force of men and boys had been employed in painting the trunks of the trees with a wash composed of soap, crude carbolic acid, and water. The efficacy of this wash as a preventive of attacks of mice or rabbits did not extend beyond a period of forty-eight hours.

On the evening of my arrival I placed wheat poisoned with strychnine at the base of about 50 apple trees. On the next morning a large number of dead voles and white-footed mice were found. So favorably were the owners of the orchard impressed by the result that a force of men was employed to distribute poisoned grain throughout the orchard.

The poisoning operations in this orchard occupied several weeks, and by January, 1904, the mice apparently had been exterminated. Rabbits, however, continued to give trouble, and the campaign against them was continued for some time longer, with final success.

As a treatment for the trees injured by mice, I recommended the immediate covering of the wounds by mounds of soil heaped up around the trunks. The plan was adopted with highly satisfactory results. New bark grew wherever the cambium layer was not eaten completely through, and a great majority of the trees recovered. (Pl. VI, fig. 2.) Had their trunks been left exposed to the sun and winds of spring and summer most of them would have died. The number of trees actually killed by mice was not very great, although the growth of many was seriously checked.

Although at first the damages from mice seemed far more extensive than those from rabbits, the ultimate losses from them probably were less. The wounds from rabbits were too high up to be successfully covered with soil, and no remedy other than wrapping with paper was tried. The difference in the character of the injuries by these animals is well illustrated by Plate VII, which shows two dead trees—one killed by mice and the other by rabbits. Plate VIII and Plate VI, figure 2, illustrate injured trees in the same orchard which have fully recovered.

The following winter, 1904–5, mice and rabbits were again abundant in the orchard, having come in from adjacent territory. The experiences of the preceding winter were repeated, except that cover for mice was less dense and the campaign against them began much earlier in the season.

During the two winters named, many other orchards throughout eastern Kansas were seriously injured by field mice. As a rule no preventive measures were used, and the total losses were enormous.

THE RELATION OF FIELD MICE TO THE FARMER.

In 1886 the Biological Survey sent out a circular letter of inquiry about damages to crops by mammals.[a] A great many replies from widely scattered places were received. The replies relating to field mice show that these animals everywhere are regarded as a pest.

The following extracts from letters on file in the office of the Bureau of Biological Survey are here presented to show not only how great is the amount of injury from field mice in certain localities, but to give an idea of the wide area over which losses are sustained.

REPORTS FROM FARMERS AND OTHERS.

Field mice are very injurious to clover fields. The injury is done by eating the roots when the ground is covered with snow. The loss is serious. They are injurious to fruit trees and yellow locust and Osage orange. They girdle them beneath the surface of the ground during deep snows. They destroy apple and pear trees, but rarely hurt peach and cherry.

—Gap, Lancaster County, Pa., Nov., 1886.

Field mice injure pastures and meadows by burrowing under grass roots and destroying them. There were more last summer than for years, I think, owing to the destruction of their natural enemies.

—Eastbrook, Lawrence County, Pa., Feb., 1887.

Meadow mice are very destructive to grain, grapes, and trees. This fall (November, 1886) three or four years ago, the fields were swarming with them. I went out with my little boy and we killed 56 in an orchard in less than two hours. In going half a mile from the station the dog picked up 15. They ruined several hundred fine apple trees for me, some of them several inches in diameter. Many thousand trees were ruined in this country. They prefer apple to plum or peach bark. —Huron, Mich., Nov., 1886.

This has been a periodical year for their invasions and the damage has been great in many fields and meadows, particularly potato fields, which have been badly damaged where the surface was grassy. They injure to a slight extent cabbage buried in the ground. Clover fields and wheat have also been damaged. They do great injury to cornfields, eating the grain and even climbing up the stalk to the ears. All kinds of vegetables are eaten. Pastures are devastated for rods where the grass is high enough to hide the mice. Other invasions occurred in 1883 and 1888. Fruit trees are not injured except in cases where there is straw or other litter; then the trees are girdled by gnawing.

—Camp Point, Adams County, Ill., Nov., 1889.

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[a] Circular No. 3, On the Economic Relations of Mammals, 1886.

Meadow mice attack almost every tree and shrub. They girdle about everything, even rosebushes, blackberry, and raspberry bushes. I saw a willow hedge yesterday (April 8, 1889), 2 years old, with nearly every stalk girdled to 6 or 8 inches above the ground. They injure pastures and meadows and destroy root crops placed in heaps. —Rochester, Mich., Apr., 1889.

Meadow mice destroy many trees and vines. The natural enemies of these mice are as much of a nuisance as the mice themselves.

—Frankfort, Mich., 1888.

Orchards here have suffered this winter from the depredations of the meadow mouse. I presume thousands of trees have been badly gnawed in this town alone. Still the war of extermination goes on against hawks and owls.

—Hammondville, N. Y., Apr., 1887.

They eat potatoes in the ground and corn in the shock. Do considerable damage to potatoes, sweet potatoes, and peanuts. —Eubank, Ky., 1887.

Field mice destroy wheat by cutting off the stalks. Sometimes the loss is serious. They are also injurious to pastures and meadows.

—French Creek, W. Va., July, 1888.

Meadow mice sometimes injure meadows. They often do serious damage to trees and shrubs. Some seasons acres of young forest trees are barked. Maple and apple suffer the oftenest. —La Crescent, Minn., Nov., 1886.

Meadow moles (voles) are present in greater numbers than ever observed before. These voles have totally ruined a great many clover meadows, strawberry patches, and pastures that were not eaten close. They have girdled hedges until they can not live, and I noticed one place where a white ash tree, 4 inches in diameter, was stripped of bark for 6 inches above the ground. They have dug into pits containing turnips and beets and devoured them completely. They promise to be with us next season in untold millions. Their presence is the more noticeable as eighteen months ago I tried to get a single specimen to send to the Department of Agriculture for identification and could not.

—Cardington, Ohio, Feb., 1890.

Field mice injure pastures and meadows by eating off the roots during winter. We are now suffering, and have been for two years, from invasions of field mice. We suffer a material loss by having the bark gnawed from most kinds of fruit trees by them during the winter. —Gansevoort, N. Y., Feb., 1888.

Our country place in Maine is being overrun with mice, which nest in the ground and destroy all the plants by eating the roots or tops of the plants as soon as they appear. —Letter from Baltimore, Md., May 16, 1904.

The summer and winter of 1883 this county was overrun with meadow mice. They destroyed thousands of apple trees, besides lots of young forest trees. Besides girdling trees, voles do meadow lands a good deal of injury by eating off the crowns of the clover plants. Three hundred dollars would not repair the damage done to an orchard near the station. In 1863 trees 6 inches in diameter were stripped of bark clear up to the limbs 4 or 5 feet from the roots.

—Huron County, Mich., Oct., 1886.

The meadow mouse is very prolific. Its presence varies at periods from a few to countless numbers. Long droughts and inclement winters as well as natural enemies probably affect their numbers.

—Kansasville, Wis., Sept., 1888.

They damage hay by cutting the grass into lengths the size of toothpicks.

—Tower, Minn., June, 1895.

Mice eat celery put up in the garden. They also eat roots of grass if there is a heavy snow on the ground during the winter.
—Lewisburg, Union County, Pa., Dec., 1886.

Mice often cause serious trouble in the winter season by girdling fruit trees, especially apple and peach trees. They commit depredations on buckwheat fields. —Milan, Bradford County, Pa., 1888.

Our fields are subject to invasions of meadow mice during the winter when mulch is on them. A thousand of the mice wintered 1885–86 on a 2-acre strawberry patch. They eat the bark of trees when straw is placed about them or snow is on the ground. —Mexico, N. Y., 1886.

Meadow mice injure dams, banks, drains, and embankments.
—Gilbertville, N. Y., 1887.

Meadow mice injure vegetables; they are especially fond of beets. They injure meadows quite seriously when numerous by feeding on grass roots. They were extremely numerous in 1885, and ate potatoes in the hills.
—Little Valley, N. Y., 1887.

In some cases I have found a shock of corn with half the corn consumed by meadow mice. —Caldwell, N. J., Nov. 1, 1886.

The fields are full of mice. They are about the ears of standing corn, while that on the ground is mostly eaten. This is surely an invasion of mice. I can account for it only because last winter was so mild that all of them survived.
—Fairfield, Iowa, Nov., 1889.

Meadow mice are very destructive to the harvest fields, particularly in the shocks. They bite the ears of wheat and cut the twine bands off the sheaves. They gnaw young fruit trees in winter, if manure or straw is left close around the stem, and they kill the trees. —Willows, Griggs County, Dak., Dec., 1886.

Field voles eat wheat, rye, and other cereals, both green and when matured, and carry green grain as well as matured kernels into their burrows. They sometimes carry a half bushel of grain into a single hole. They damage fodder by cutting it. —North Topeka, Kans., May, 1890.

In the summer of 1884 we had an invasion of meadow mice [probably *M. townsendi*], and they did much damage. They destroyed seeds in the garden and ate growing wheat and oats in the spring, sometimes nearly destroying entire fields. They played havoc with the early peas and destroyed carrots and parsnips in the fall. The summer was unusually wet. The next summer was dry, and the mice disappeared. This is the only mouse year we have ever had here. During the year nearly all the cats died, apparently from eating the mice. They caught and ate them freely and were all affected alike. Some vomited more freely than others; they got puny, refused to eat, and died. Since the "mouse year" cats are themselves again.
—Aumsville, Oreg., Dec., 1886.

The bob-tailed mouse is a pest here, eating all kinds of bulbs, lilies, tulips, potatoes, etc. —Centerville, Mo., 1887.

Meadow mice ruined nearly the entire crop of clover in the winter of 1884–85.
—Wakeman, Ohio, 1886.

We are troubled with meadow voles. When we have much snow in winter they are very plentiful the next summer. Winter thaws, which leave the fields bare of snow, destroy them. They destroy fruit trees by gnawing the bark under the snow. I think they will eat the bark from any kind of young trees. The damage is serious. —Montpelier, Vt., Nov., 1886.

Voles sometimes gnaw young apple and pear trees, mostly in winter; in summer also where red clover grows about the trees. The loss is serious.
—Salem, Ohio, 1886.

Meadow mice are injurious to meadows and pastures by cutting the sod in winter. We had an invasion of them in the winter of 1864, when they killed grape vines, raspberries, and crab-apple trees 5 inches in diameter.
—Stoughton, Wis., 1887.

Field mice are destructive to grain crops. Their depredations are mostly confined to the consumption of grain, but the injury by them depends upon the nut crop; if this is plentiful they do not disturb grain, or corn chiefly, but if there is a scarcity of nuts, they make incursions on the fields of corn, doing considerable damage. —Columbia, Conn., Sept., 1887.

The majority of the preceding reports refer to the common meadow mouse (*M. pennsylvanicus*) and its subspecies, but some of them from the Middle West undoubtedly include references to the prairie vole (*M. ochrogaster*), which is more numerous there. Most of the destruction to potatoes and stored vegetables may be attributed to pine mice.

REPORTS FROM NURSERYMEN AND ORCHARDISTS.

Early in March, 1906, a circular letter of inquiry asking for information in regard to damages by field mice was sent to more than a thousand representative nurserymen and fruit growers in the United States and southern Canada. Up to April 10, 1906, replies returned number 520, of which a summary is presented in tabular form.

Damages by field mice, as reported by nurserymen and fruit growers.

State or province	Number of circulars sent.	Number of replies received.	Mice abundant.	Mice not abundant.	Mice absent.	Damage by mice serious.	Damage not serious.	Damage none.	Number who make estimates.	Total of damage estimates.
Maine	8	4	2	2	......	2	1	1	2	$125
Mew Hampshire	11	7	5	2	......	4	3	......	2	100
Vermont	6	2	1	1	......	......	2	......	......	....
Massachusetts	40	23	11	12	......	7	10	6	7	865
Rhode Island	6	4	......	1	3	......	1	3	......	....
Connecticut	22	11	7	4	......	3	6	2	4	460
New York	85	34	24	9	1	20	7	7	16	8,275
New Jersey	23	12	6	6	......	3	8	1	4	750
Pennsylvania	37	27	22	5	......	13	11	3	15	3,100
Delaware	10	3	......	3	......	......	2	1	......	....
Maryland	20	12	6	6	......	3	4	5	2	35
Virginia	12	3	1	2	......	......	3	......	......	....
West Virginia	9	6	2	4	......	1	2	3	1	350
North Carolina	16	10	6	4	......	4	2	4	1	3,000
South Carolina	3	1	......	......	1	......	......	1	......	....
Georgia	16	8	......	2	6	......	1	7	......	....
Florida	6	5	[a]3	2	......	......	......	5	......	....
Alabama	22	9	......	5	4	......	1	8	......	....
Mississippi	9	3	......	1	2	......	......	3	......	....
Tennessee	18	7	2	5	......	......	2	5	1	25
Kentucky	30	18	3	15	......	2	8	8	1	75

[a] Probably not *Microtus*.

Damages by field mice, as reported by nurserymen and fruit growers—Cont'd.

State or province.	Number of circulars sent.	Number of replies received.	Mice abundant.	Mice not abundant.	Mice absent.	Damage by mice serious.	Damage not serious.	Damage done.	Number who make estimates.	Total of damage estimates.
Ohio	51	24	13	11	......	6	12	6	5	$700
Indiana	40	20	7	13	......	5	9	6	......	....
Illinois	56	29	19	8	2	14	8	7	12	4,800
Michigan	43	19	13	6	......	7	8	4	5	1,400
Wisconsin	28	13	9	4	......	6	4	3	6	6,825
Minnesota	27	22	17	5	......	13	8	1	13	4,685
Iowa	49	26	22	4	......	16	7	3	4	2,500
Missouri	38	25	16	9	......	13	4	8	7	4,150
Arkansas	16	7	2	3	2	......	2	5	......	....
Louisiana	10	6	......	[a]2	4	......	1	5	......	....
Texas	18	10	[a]3	6	1	......	2	8	......	....
Oklahoma	14	6	......	6	......	......	6	......	......	....
Indian Territory	5	3	......	3	......	......	......	3	......	....
Kansas	46	27	12	15	......	8	9	10	9	57,400
Nebraska	32	20	7	13	......	6	7	7	3	350
South Dakota	16	7	2	5	......	2	3	2	......	....
North Dakota	6	5	2	2	1	2	1	2	1	100
Montana	11	3	3	......	......	2	1	......	1	500
Wyoming	1	1	1	......	......	......	......	1	......	....
Colorado	10	3	1	1	1	......	......	3	......	....
New Mexico	4	1	......	......	1	......	......	1	......	....
Arizona	1	1	......	......	1	......	......	1	......	....
Utah	5	3	2	1	......	1	2	......	......	....
Nevada	0	0	......	......	......	......	......	......	......	....
California	18	10	2	3	5	1	1	8	......	....
Oregon	12	7	4	2	1	1	1	5	......	....
Idaho	8	4	3	1	......	1	2	1	1	50
Washington	9	4	......	4	......	1	3	......	2	75
Ontario	17	4	4	......	......	4	......	......	3	6,500
Quebec	2	1	1	......	......	1	......	......	......	....
Total	1,003	520	266	218	36	172	175	173	129	107,195

[a] Probably not *Microtus*.

Some comments on the above table are necessary. In reporting the abundance of mice nearly all the replies refer to present conditions. In many places where the animals are not now common they have been numerous in past years. In reporting damages many correspondents gave only personal experience, but did not answer the question as to damages in the neighborhood. Few of the persons who had sustained serious damages were able to estimate the amount of the losses, while many whose losses were slight made such estimates.

It will be noticed that in the South the injury from field mice is not serious, and that in the far West mice are troublesome in fewer localities than in the northern part of the country east of the Mississippi River.

Extracts from replies to the circular are here presented:

> Field mice are abundant here. They have done me a great deal of damage during the past year, principally on overgrown stock that I have not cultivated, allowing grass to grow around the trees. They were also very destructive to a lot of young date palms (*Phœnix canariensis*) grown close together in a bed.
>
> —West Berkeley, Cal.

> Field mice are abundant here. We lost about 200 fruit trees from their attacks in 1903. Other orchards and nurseries in this section have been badly injured.
>
> —Carlton, Mont.

Field mice are abundant in this vicinity, and in the winter of 1904–5 did much damage to orchards. In neighboring orchards, where girdling is claimed to be done by rabbits, I find that in five-sixths of the cases the injury is done by mice.
—Cokato, Minn.

We lost 2,000 trees in our orchards, not all killed—actual loss, about $4,000.
—Topeka, Kans.

Mice are abundant here this winter, and have girdled 5,000 trees in the nursery. —Moundsville, W. Va.

Field mice are abundant in North Carolina. On account of the general lack of snow in the vicinity of Raleigh they have not done serious damage to trees, but are very troublesome in gardens. The general observer charges moles with all the damage, but I have found that the mice, following in the mole runs, are the most serious enemies. Following under the sweet-potato ridges they gnaw the potatoes and do a great deal of damage. By using carbon bisulphid in the mole runs I destroyed more mice than moles, and became satisfied that the vegetable eating was mainly, if not entirely, done by the mice [pine mice].
—Raleigh, N. C.

In the winter of 1904–5 my loss in the peach orchard from mice was fully 10 per cent of the 1-year-old trees and 5 per cent of the 2-year-old. One 2-year-old peach orchard having turnips only on the ground was badly injured where snow was drifted. Another orchard in rather grassy corn stubble was injured in the same way. Peach seedlings in the nursery were also badly injured. —Aspers, Adams County, Pa.

Young trees and nursery stock were damaged by mice in 1904–5 when the snow was deep. It is difficult to protect nursery stock. The common skunk destroys field mice, and protecting the skunk is the best preventive of injury of which I know. —Collinsville, Hartford County, Conn.

Mice become worse every year, and its seems impossible to prevent damage now. This year, while there has been but little snow, they have damaged many trees. I have had 150 trees killed by mice in my orchard of 120 acres. They eat the bark from 8 inches below the surface of the ground to 12 or 15 inches above the ground. —Council Grove, Morris County, Kans.

A lot of the trees heeled in the ground over winter and covered heavily with leaves were damaged by mice. —Versailles, Ky.

During the winter of 1903–4 we had about 50 trees girdled in the orchard. Field mice seem to come as a scourge periodically. I can remember of from four to five seasons out of the past twenty-five when the pest was very, very numerous here. It seems almost incredible how all of a sudden they come and then seemingly mysteriously disappear. The country seems now to be almost free of them. —Center Point, Iowa.

Considerable damage has been done in the nursery, particularly to seeds of trees and shrubs, and also in girdling young trees under heavy snow. The mice [pine mice] work under mulching on trees and, in mole runs, on seeds and roots of some plants. —Saginaw, N. C.

No injury was noticed this open winter, but last year they girdled many young apple trees, both in the nursery rows and when heeled in.

Some few years ago this whole section suffered untold mischief by an unusual incursion of short-tailed field mice. They seemed to be everywhere, especially on roadsides and under hedges. While the snow lay deep they ate the bark from the roots of apple, locust, and some other trees, including the Osage orange.

This eating was always below the snow line or under cover of litter of any sort that hid the animals from the eyes of hawks and owls. These and foxes are their natural enemies.

The greatest absolute loss that season was in the destruction of red clover (*Trifolium pratense*). Many fields that went into winter with a beautiful aftermath of clover and other grasses came out in the spring bare of any profitable cover and had to be replowed, the clover roots having all been eaten out.

The favorite dainty with the mice is celery, when it is trenched in and covered with fodder. —Colora, Cecil County, Md.

Field mice are abundant here. While I have personally had no losses of trees from them, very many orchards and nurseries in this vicinity have been nearly ruined, especially where they were neglected and grass and weeds were permitted to grow. I prevent loss by thorough cultivation and by mounding up soil at the base of the trees late in the fall. —Boone, Boone County, Iowa.

I had perhaps 10,000 trees destroyed by mice and rabbits during the past five years, mostly by mice, in 1904 and 1905. Loss, $2,000. —Twin Bluffs, Wis.

Mice are abundant here. We have suffered no damage, but some young orchards have been completely ruined. They were left with quite a mulching of grass and cover. This made a harbor for the mice, and they girdled nearly all of the trees. —Oakland, Kans.

We lost $2,000 worth of nursery stock in 1904 and 1905.
—Rochester, N. Y.

We have a few thousand nursery trees destroyed by them each season.
—Charles City, Iowa.

Field mice abundant. My nurseries have been damaged to a great extent, especially last year during heavy snow. —Ellisville, Mo.

During the winter of 1903–4 mice were very abundant throughout the valley and, indeed, in most of the State. The damage to nurseries and orchards was about 25 per cent. Shade trees, as well as apple, were injured. The following summer the mice were exceedingly abundant in clover fields. Early in the spring they greatly disfigured lawns in the city and in the cemetery by burrowing on the surface of the ground under the snow. [The species in the valley is *M. pennsylvanicus modestus*.] —Bozeman, Mont.

Ten years ago we scarcely noticed any damage from mice. Some six years ago they began doing more or less damage and became very troublesome in the winter of 1903–4. They mowed off our two and three year old evergreens by the thousands, so that we had to rake over the beds before counting out trees to ship. We had piles of small trees the size of haycocks. I can not tell the money value, but think it much higher than I put it ($2,000).

I laid the trouble in this section to hunters. Hawks, owls, minks, skunks, etc., used to be very plenty, but they have nearly all been killed. Their principal food is mice. A short-eared owl wintered near our sheds in an evergreen, and you could hardly believe the piles of mice skins under that tree in spring.

Two years ago a pair of weasels took up their abode in our tree cellar, breeding there last year. They kept most of the mice killed off. In the summer we saw the old one quite often carrying mice to its young from outside the shed. * * * This winter has been very mild, with no snow. Mice have been plenty in meadows, but grass kept green and tender, and they did our nurseries little damage. —Waukegan, Ill.

ECONOMIC STATUS OF FIELD MICE.

The foregoing testimony as to the ravages of field mice sufficiently attests their noxious character. The extent to which they are beneficial to the farmer may be stated in few words. The upturning of the soil by gophers, ground squirrels, moles, earthworms, and various insects is an important part of its preparation for man's use, and field mice contribute to the work. In addition, mice diminish the number of weeds by eating the seeds and, possibly, occasionally devouring the roots.

The character of the vegetable matter eaten by field mice depends entirely upon the environment. If the animals live in swamps where rushes, sedges, and grasses useless to agriculture abound, their diet is confined to these, and the naturalist who investigates their food only in such surroundings may fall into the error of concluding that they are not injurious. But field mice at all times show a decided preference for cultivated plants and grains, if accessible, and in winter seek diligently for succulent roots and the green bark of trees.

REPRESSION OF FIELD MICE—NATURAL AGENCIES.

In view of their wide distribution and the nature of their habitats, the complete extermination of field mice is impossible. It is, however, entirely practicable to so reduce their numbers that crops shall be safe from serious attack. Before describing the methods which the farmer may use to destroy the animals, it is important to consider the natural agencies which aid in their repression.

CLIMATIC INFLUENCES.

Climatic conditions so strongly influence the natural increase of field mice that an understanding of their relation to such increase is important. It has been often noticed that the periods of greatest abundance of voles follow one or more open, warm winters succeeded by wet summers. If at the same time food—particularly grain—is abundant, the most favorable conditions for the increase of the animals are present, and the maximum number of young at a birth, as well as the maximum number of litters, are brought forth. When grain is abundant the young of some species are said to begin to reproduce when only 2 months old.

The continuance of favorable conditions for two or more years is sure to be followed by an enormous increase of field mice, with serious injury to crops.

Very cold winters without snow and summers of long droughts are unfavorable to the increase of field mice. Occasionally a severe frost following a heavy downpour of rain destroys nearly all field mice over large areas.

EPIDEMIC DISEASES.

Excessive multiplication of any mammal to the point of overcrowding is sure to be followed sooner or later by a fatal epidemic. Numerous instances of the prevalence of such diseases among rodents are known, and several of the historic mouse plagues were terminated by them. So complete was the destruction that several years of almost total absence of mice followed.

NATURAL ENEMIES OF FIELD MICE.

Prominent among the recognized causes for the great increase of rodent pests in recent years is the persistent destruction of the birds, mammals, and snakes that habitually prey upon them. Warfare against the natural enemies of noxious rodents is not confined to America. In the British Islands and on the Continent gamekeepers have systematically killed foxes, weasels, stoats, hawks, and owls, on the plea that they destroy game, and even farmers have joined in the warfare against the so-called "vermin." In America the same mistaken sentiment exists, and too often has led to ill-advised legislation against mammals and birds that are beneficial to the farmer. Wise measures for game protection can not be too highly commended, but ignorance of the true relations of animals and birds of prey to game is widespread even among lawmakers and sportsmen's clubs.

One of the most common mistakes made by sportsmen in the supposed interests of game protection is the offer of prizes for the destruction of alleged "game-destroying" mammals and birds. In one instance nine competitors for a club's prizes destroyed during twelve months 184 weasels, 48 foxes, 54 minks, 343 skunks, 15 great horned owls, 6 "common owls," and 148 hawks. The fact that only 21 owls were killed in an entire year by nine men trying for a record reveals a scarcity of these useful birds that is not complimentary to the intelligence of the community. The large number of skunks killed indicates ignorance or disregard of the usefulness of that animal in destroying insects and mice. Apparently, too, there was no discrimination as to the species of hawks destroyed, and it is probably safe to say that field mice in a single year have damaged the farmers of the region concerned a hundredfold more than the value of all the game and poultry saved through the offer of prizes.

The evidence presented to a committee of the British Board of Agriculture, who were investigating the Scottish vole plague of 1892, showed conclusively that in the affected district before the outbreak carnivorous animals and birds had been very scarce. The committee in their report emphasized the importance of protecting the birds, whose absence in the district in question was regarded as an important cause of the enormous multiplication of voles.

The chief natural enemies of field mice are (1) mammals, wild and domestic, (2) birds, and (3) snakes.

Mammals That Destroy Field Mice.

WILD MAMMALS.

Among the wild mammals of the United States known to feed upon field mice are wolves, lynxes, foxes, badgers, raccoons, opossums, skunks, weasels, and shrews. A few of these feed upon mice habitually, and this habit, combined with their well-known service in destroying insects, compensates in great measure for the injuries they inflict in other ways.

Skunks are efficient in the destruction of mice and rats. The larger skunks (*Mephitis*), with about 17 species and subspecies, are distributed over most of the territory occupied by field mice. Their chief food is insects, but mice are second in importance on the bill of fare. Skunks not only search woods and meadows for mice but often come about barns and outbuildings in quest of the common mouse (*Mus musculus*) and brown rat (*Mus norvegicus*). While it is true that skunks sometimes destroy poultry, they do so much less frequently than is generally supposed. Comparatively few skunks learn to kill chickens, the habit being characteristic of the individual rather than of the species.

Of 36 skunks of the genus *Mephitis* whose stomachs were examined by the Biological Survey, two only, both captured in poultry houses, had eaten domestic fowls. There was no evidence that any of the 36 had destroyed game or small birds. The food consisted principally of beetles, grasshoppers, cicadas, crickets, rats, mice, and lizards. On account of their usefulness in destroying noxious insects and rodents, skunks deserve even more than the partial protection now afforded them by the laws of several States.

The habits of the little spotted skunks (*Spilogale*) are similar to those of the larger species. Like them, they are useful because they destroy insects and mice. Occasionally individuals learn to destroy domestic fowls, but the habit is even rarer than with the large skunks. As persistent and successful mousers about farm premises, they are unequaled and should be protected, the death penalty being reserved solely for the individuals that attack poultry.

The white-backed skunks (*Conepatus*) live in the South, mostly out of the range of field mice. They destroy many other kinds of rats and mice.

The mink (*Lutreola*) feeds commonly upon fish and other aquatic animals, but sometimes raids poultry kept near streams. It destroys meadow mice as well as other small rodents. The fur is in such demand, however, that minks are not likely to become sufficiently numerous to have much effect, good or bad, upon the interests of the farmer.

The various species of weasels and wild ferrets are persistent destroyers of meadow mice. The smaller weasels easily traverse the surface runways of the larger species of *Microtus* and even follow them into underground burrows. The larger weasels feed upon pocket gophers, prairie dogs, ground squirrels, and various kinds of mice and rats. While occasionally they capture game or song birds, as well as poultry, their principal food consists of injurious rodents.

The small American weasels, like European species, have an evil reputation among game preservers and farmers, who assert that weasels destroy the eggs and young of game birds, as well as young chickens and other fowls. However, stomach examinations, supplemented by careful field observations, show that small mammals form the principal food of weasels. Among their prey are cottontail rabbits, little chief hares (*Ochotona*), prairie dogs, ground squirrels, wood rats, field mice, and the house mouse and brown rat.

A recent advance in the price of weasel skins in white, or winter, pelage has already caused a marked scarcity of these animals in some of the Northern States. The present abundance of meadow mice in the same States is attributable partly to the destruction of weasels. A correspondent in Minnesota, in a letter dated April 14, 1906, states that field mice were very abundant in his neighborhood during the preceding winter and caused much damage in orchards and nurseries. He adds: "The animals have never been so numerous here as during the last two years. I think weasels used to keep mice in check, but the high price of fur has made them very scarce."

Badgers, when not employed in unearthing larger rodents, devote much time and labor to digging out field mice. One will patiently excavate every burrow on an acre or more of ground, and, besides the litters of young, evidently get a large share of the old mice. Badgers have been caught with their intestines full of pellets of fur and bones of *Microtus*. Nevertheless, while doing almost no harm and while in general highly beneficial, badgers are destroyed almost everywhere, partly for sport, partly because on rare occasions one raids an unprotected chicken coop.

Foxes destroy many field mice and other rodents as well as many insects, especially grasshoppers, and thus do much to compensate for the poultry and game they kill. Although reliable testimony to the destruction of domestic fowls by the red fox (*Vulpes fulva*) is not wanting, the habit is by no means common, as is shown by the contents of stomachs examined by the Biological Survey. In three cases remains of the Gambel partridge were found and in one other a small bird. On the other hand, harmful rodents, including field mice, were found in over 20 stomachs. Besides these, a mole, a lizard, grass, corn, blueberries, and cultivated grapes show a somewhat miscellaneous diet. A writer in Forest and Stream states that in the stomach of a gray fox (*Urocyon cinereoargenteus*), taken at Milford, Conn., he found rabbit hair, parts of a field mouse, sweet corn, pieces of apple, remains of a woodcock, and some leaves.[a]

That shrews destroy many field mice is certain, although the evidence is largely circumstantial. It is known that they eat dead mice that have been caught in traps. It is proved that they are able to capture a live field mouse in its burrow by the fact that when both animals are confined in the same cage the shrew kills and partly eats the other animal. Shrews are often trapped in the burrows of field mice, and it is highly probable that they habitually feed upon the rodents. As they eat only the flesh and blood of their victims it is difficult to identify their food by stomach examinations.

The common brown rat (*Mus norvegicus*) is an enemy of field mice where both occur in the same locality. On the Potomac flats, south of Washington, D. C., both rats and meadow mice (*M. pennsylvanicus*) are abundant. On various occasions, while trapping mice there, specimens in small cage traps were destroyed by rats. Several times I had occasion to uncover burrows and runways of the mice by removing piles of dry weeds. On the following mornings I found that rats had enlarged the burrows in pursuit of mice, and the remains of fur and stains of blood on the ground showed that the pursuit had been successful. It is unfortunate that rats are even worse pests than the field mice they destroy.

Of the other wild mammals that destroy field mice—wolves, coyotes, lynxes, raccoons, and opossums—it may be said that the mouse-eating habit is not always prominent and that their economic status can not be determined by it alone. On the whole, however, their general effect in checking the increase of rodents must be regarded as an important item to their credit.

DOMESTIC MAMMALS.

Some of the domestic animals assist in the destruction of field mice. Cattle and horses in pastures undoubtedly trample upon and destroy many mice, especially the young. Hogs in fields and wood lots root them from burrows and nests and eat them. Aristotle mentions the ancient practice of turning swine among mice "to root up their runs."[b] But the more important of their enemies among domestic animals are dogs and cats.

Dogs follow the farmer to the field and at plowing and harvest are ready to pounce upon and kill every mouse that is uncovered in furrow or shock. While they seldom eat rats or house mice, they sometimes become very fond of field mice and learn to hunt them independently. A good rat dog is undoubtedly a valuable asset of the farm, and I have known one to keep premises clear of brown rats (*Mus norvegicus*) when adjoining farms were overrun with them.

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[a] Forest and Stream, vol. 55, p. 464, Dec. 15, 1900.

[b] Aristotle's History of Animals, Book 6, chap. 30, p. 178, Bohn's edition, London, 1862.

Many cats are good mousers, both in house and field. Some live largely upon pocket gophers, ground squirrels, and field mice. Unfortunately, however, when cats roam afield they learn to destroy song birds, young poultry, and game. The ordinary farm cat is exceedingly destructive to small birds and game, and the number that cats annually kill is immense.

House cats usually are too well fed to make good mousers, and are believed to aid in the spread of infectious diseases among human beings. In spite of the usefulness of individual cats in destroying mice, every community would be better off for a large reduction in its feline population.

Birds that Destroy Field Mice.

Many species of birds destroy rodents. Among those that eat field mice are shrikes, cuckoos, crows, herons, bitterns, storks, ibises, gulls, hawks, and owls. Unlike the mammals already named, some of these birds live almost exclusively upon field mice, and hence are of great assistance in reducing their numbers.

BIRDS OF PREY.

At the head of the list of bird enemies of field mice stand the hawks and owls. Most of the species habitually feed upon rodents, a few of them almost entirely. Moreover, the species that feed least upon harmful rodents feed largely upon insects. Thus the beneficial character of hawks and owls as a group is beyond question.

Fortunately the economic status of American hawks and owls does not rest upon mere theory or general assertions without proof. Bulletin No. 3 of the Biological Survey[a] deals with the food habits of hawks and owls of the United States, and is based upon examinations of nearly 2,700 stomachs. Such large series of the more common species were examined that further investigations can but confirm and emphasize the present verdict—that American hawks and owls, as a whole, are among the best friends of the farmer and that only a few species are more harmful than beneficial.[b]

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[a] The Hawks and Owls of the United States in their Relation to Agriculture, by A. K. Fisher, M. D., Washington, 1893.

[b] Doctor Fisher's report on the food of hawks and owls has long been out of print. For this reason some of the more important summaries of results, especially those relating to the mammal food, are given in this paper. Circular 61, Bureau of Biological Survey, Hawks and Owls from the Standpoint of the Farmer, gives a brief summary of the original report by Doctor Fisher, and may be had on application.

HAWKS.—Though hawks are our most common birds of prey, many kinds are too rare to exert a marked effect, either injurious or beneficial, upon the interests of the farmer; but the most common kinds are widely distributed and their voracious appetites make them of considerable economic importance. Nearly all hawks feed more or less upon rodents, and their most frequent victims are the short-tailed field mice.

The marsh hawk, or harrier (*Circus hudsonius*), is probably the most common and most widely distributed North American species. It is of medium size and may easily be recognized, while flying low over fields and meadows, by its conspicuous white upper tail coverts. The results of an examination of 124 stomachs of this species are as follows: Seven contained poultry or game; 34, small birds; 57, mice; 22, other mammals; 7, reptiles; 2, frogs; 14, insects; and 8 were empty. Field mice were positively identified in 44 stomachs, averaging almost two to each stomach. Eight were found in one stomach. The other mammals were mainly ground squirrels (spermophiles) and rabbits.

The buzzard hawks (genus *Buteo*) include seven species and six subspecies, all rather large and slow of wing. They are rarely able to capture a domestic or wild fowl. They live chiefly on small mammals, insects, snakes, and batrachians. The group includes such well-known birds as the red-tailed hawk (*Buteo borealis* and four subspecies), red-shouldered hawk (*Buteo lineatus* and two subspecies), Swainson hawk (*Buteo swainsoni*), and broad-winged hawk (*Buteo platypterus*).

A summary of the food of 562 red-tailed hawks is as follows: Fifty-four of the stomachs contained poultry or game birds; 51, other birds; 278, mice; 131, other mammals; 37, batrachians and reptiles; 47, insects; 8, crayfish; 1, centipedes; 13, offal; and 89 were empty. Two hundred and twenty-eight stomachs contained 350 field mice.

Of 220 stomachs of the red-shouldered hawk 3 contained poultry; 12, other birds; 102, mice; 40, other mammals; 20, reptiles; 39, batrachians; 92, insects; 16, spiders; 7, crayfish; 1, earthworms; 2, offal; 3, fish; and 14 were empty. Sixty-three stomachs contained 89 field mice.

Of Swainson hawks, 18 stomachs were examined. Of these 7 contained small mammals; 8 contained insects; 3, reptiles; 3, batrachians; and 3 were empty. One of the mammals was a mouse, and nearly all the insects were locusts and grasshoppers. Throughout its summer range this species lives almost entirely upon grasshoppers.

Of broad-winged hawks, 65 stomachs were examined, 15 of which contained mice, and 13 other small mammals. No poultry or game birds were found in the stomachs, and the chief food was insects.

The most common Old-World representative of the genus is *Buteo buteo*, the common buzzard of England, and popularly known in Germany as the mouse buzzard (*Mäusebussard*). That the last name is well deserved, is shown from the researches of Dr. G. Rörig, of Berlin, who in 784 stomachs of this species found no less than 1,124 rodents, of which 1,057 were the common field mouse (*M. arvalis*).[a]

Two prominent species of rough-legged hawks (*Archibuteo*) occur in America. Both are winter sojourners with us. The northern form, the common rough-leg (*Archibuteo lagopus sancti-johannis*), summers north of the United States. The ferruginous rough-leg (*A. ferrugineus*), commonly known as the squirrel hawk, nests extensively in the Western States, but is more common there in winter. Both species are large and may be easily distinguished by the feathering of the legs, which extends to the base of the toes. Doctor Fisher examined 50 stomachs, all but 1 being of the common rough-leg. Of these, 40 contained mice only; 5, other mammals; 1, insects and a lizard; and 4 were empty. Of the 40 containing mice, 28 had meadow mice only, the number varying from 1 to 8 and the average being more than 3 to each hawk. These are winter records. In summer the birds doubtless are largely insectivorous. It is certain that the rough-legs do not often molest wild birds or domestic fowls.

The researches of Doctor Rörig make an equally favorable showing for the Old World rough-legged hawk (*Archibuteo lagopus lagopus*). He examined 250 stomachs of that species and found remains of 879 rodents, mostly field mice. Ninety-four per cent of the birds examined by him had eaten injurious rodents.[b]

The true falcons (genus *Falco*) of North America comprise 17 species and subspecies, of which 3 are accidental visitors from abroad, and several others, notably the gyrfalcons, are exceedingly rare within the United States. The various falcons differ much in size, but all are strong and swift of wing. The larger species destroy poultry and game, while the smaller kinds prey upon small birds and insects. All feed to some extent upon mice. The most common species are the duck hawk (*Falco peregrinus anatum*), the prairie falcon (*Falco mexicanus*), the pigeon hawk (*Falco columbarius*), and the sparrow hawk (*Falco sparverius*).

The duck hawk is a rather large falcon, and, as its name implies, preys much upon waterfowl. It destroys also game birds, domestic fowls, pigeons, and small birds. Although it feeds to some extent also upon insects and mice, the habits of the species, on the whole, do not commend it to the protection of farmers and sportsmen.

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[a] Arb. Biol. Abteilung für Land- und Forstwirtschaft, IV Band, 1 Heft, p. 64, 1903.

[b] Arb. Biol. Abteilung für Land- und Forstwirtschaft, IV Band, 1 Heft, p. 74, 1903.

The prairie falcon inhabits the West and Southwest. Its habits are somewhat similar to those of the duck hawk. It feeds largely upon land birds, mammals, and insects. Game birds and tame pigeons are known to be on its "bill of fare."

The pigeon hawk is smaller than either of the two preceding species, and is widely distributed in North and Middle America. It nests chiefly north of the forty-third parallel, except in the higher mountains. It feeds mainly upon small and medium-sized birds, a few field mice, and insects (chiefly dragon flies and grasshoppers). Fortunately for our summer song birds, the pigeon hawk for the most part is migratory within the United States. However, it accomplishes some good by destroying English sparrows.

The sparrow hawk is the commonest of our falcons. While it destroys some small birds, its chief food is insects and mice. It is too small to do much injury to poultry and game, and many of the small birds it captures are the injurious European sparrow. Doctor Fisher's report gives the results of examinations of 320 stomachs of the sparrow hawk. Of these, 1 contained a quail; 53, small birds; 89, mice; 29, spiders; and 29 were empty. The insects were largely grasshoppers, and about half of the mice were field mice.

Two common hawks of the genus *Accipiter* should be mentioned—the Cooper hawk (*Accipiter cooperi*) and the sharp-shinned hawk (*A. velox*). Both destroy many birds and feed only to a small extent upon injurious mammals and insects. The Cooper hawk destroys much poultry and game, while the sharp-shinned hawk lives chiefly upon smaller birds, including quail and young chickens. Although both species prey upon meadow mice, their limited usefulness in this respect does not offset their injurious habits. The thieving traits of these two birds has had much to do with the undeserved ill repute in which hawks as a whole are held.

All the other American hawks and eagles prey to some extent upon field mice. The kites (four species) are highly insectivorous. The Mississippi kite (*Ictinia mississippiensis*), known sometimes as the blue hawk, is locally abundant as a summer resident in southern Kansas, in Oklahoma, and parts of Texas. Its food is almost exclusively grasshoppers, and it seldom molests birds, yet it is often wantonly destroyed by sportsmen simply because it is a hawk and offers a tempting mark. The same may be said of the other kites, including the beautiful and useful swallow-tailed species.

The chief economic function of hawks seems to be the destruction of harmful rodents and insects. A majority of the species are decidedly useful, their good qualities far outweighing the bad. A few have no harmful habits, but are wholly beneficial. A smaller number have good and bad traits nearly balanced, or certain species may be beneficial in some localities but harmful in others. Two common species—the Cooper and sharp-shinned—destroy so many birds and poultry as to far outweigh any good they may do. If legislation against hawks is needed, which is more than doubtful, careful discrimination should be exercised as to the species placed under ban, and corresponding protection should be given those that are of undoubted benefit to the farmer.

Owls.—Owls are preeminently enemies of mice. Their eyes are adapted to twilight and nocturnal hunting, and they prey mostly upon animals that are active after sunset. Noiseless of wing and possessed of sharp talons and much strength, they attack small mammals with great success.

Owls, and also hawks and some other birds that eat small vertebrates by swallowing them entire, are unable to digest the bones, fur, and feathers. These are thrown up in the form of pellets, the bones being surrounded by fur and feathers. Much of our knowledge of the food of owls is derived from examinations of these pellets.

The American barn owl (*Strix pratincola*) is rather common in the southern half of the United States, breeding as far north as forty-one degrees. In part of its range field mice are common and it preys upon them to a considerable extent. Examinations of 39 stomachs of barn owls were made by Doctor Fisher. Of these, 1 had eaten a domestic pigeon; 3, other birds; 17, mice; 17, other mammals; 4, insects; and 7 stomachs were empty. Meadow mice were found in 9 of the stomachs. The mammals eaten, other than mice, were chiefly ground squirrels (spermophiles) and other injurious species.

Doctor Fisher records the results obtained from an examination of 675 pellets of the barn owl collected at Washington, D. C. They contain remains of 1,731 rodents, 56 insectivorous mammals, 32 birds, and 2 frogs. The rodents were mainly rats (*Mus norvegicus*), house mice (*Mus musculus*), and meadow mice (*Microtus*). Of the last there were 1,123 skulls, or an average of almost 2 to each pellet.[a] Doubtless similar investigations in California, where these owls are common, would show that there spermophiles are the chief food.

The habits of the European barn owl (*Strix aluco*) serve to illustrate further the usefulness of our own bird. Dr. Bernard Altum, a German naturalist, in 1863 recorded the results of examinations of 703 pellets of the barn owl. He found remains of 16 bats, 933 rodents, 1,479 shrews, and 22 small birds (19 of which were sparrows). Of the rodents 693 were voles.[b] Later (1867) he published the results of examinations of 360 additional pellets, making 1,063 in all. The total shows 2,151 insectivorous mammals, and 1,801 rodents, of which 1,284 were voles.[c]

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[a] Science, N. S., vol. 3, pp. 623–624, Apr. 24, 1896.

[b] Journal für Ornithologie, vol. 11, pp. 41–46, 217–219, 1863.

[c] Zoologische Garten, vol. 8, pp. 263–264, 1867.

The Reverend Doctor Jäckel, of Windsheim, Bavaria, collected and examined a total of 6,512 pellets of the barn owl. In them he identified skulls of 5,210 shrews and 14,790 rodents, of which 9,046 were *Microtus*.[a] Doctor Rörig more recently examined 121 pellets of barn owl and in them identified 291 voles, 68 true mice, 35 shrews, and 13 sparrows,[b] a result more in harmony with Doctor Fisher's tables.

John Watson calculates that each pair of owls of this species while feeding their young capture at least 40 mice per day. Once he found no fewer than 17 recently killed field mice on the side of a barn owl's nest which contained 5 young owls.[c] The late Edward Newman stated that every owl of this species is worth £5 per year to the British nation.[d]

The long-eared owl (*Asio wilsonianus*) is distributed throughout temperate North America, except the treeless plains. It is a constant resident over most of its range, and its usefulness in the destruction of mice continues throughout the year. Of the 107 stomachs examined by Doctor Fisher, 1 contained a quail; 15, other birds; 84, mice; 5, other mammals; 1, insects; and 15 were empty. Of the 84 containing mice, 46 contained specimens positively identified as meadow and pine mice. About 50 pellets cast up by long-eared owls contained 176 skulls, representing 93 meadow mice, 19 pine mice, 23 other mice, 26 shrews, and 13 small birds.

The long-eared owl (*Asio otus*) of the Old World has a similar record. Doctor Rörig made 108 stomach examinations of this species. In the stomachs he identified 20 small birds, 1 weasel, 2 bats, 18 shrews, 29 true mice, 14 bank voles (*Evotomys*), and 365 field mice (*Microtus*). Nine stomachs contained insects. Eighty-four per cent of the birds had eaten mice. A single stomach contained 12 field mice.

In 142 pellets of *A. otus* examined by Doctor Altum, he found 3 small birds, 2 shrews, 14 true mice, 12 bank voles, and 259 voles (1 *M. amphibius*, 65 *M. agrestis*, and 193 *M. arvalis*.[e] Doctor Rörig examined 1,053 pellets of long-eared owl and found remains of 14 small birds, 1 frog, 2 moles, 29 shrews, 22 true mice, 15 bank voles, and 1,764 voles. Selby found 5 mice in a single stomach of this species.

The short-eared owl (*Asio accipitrinus*) is probably the greatest enemy of field mice. It figures in many historical accounts of vole plagues in England and on the Continent. Holinshed's Chronicle closes the account of voles in Danesey Hundred, of the county of

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[a] Zoologische Garten, vol. 15, p. 469, 1874.

[b] Arb. Biol. Abteilung für Land- und Forstwirtschaft, IV Band, 1 Heft, pp. 102–104, 1903.

[c] Ornithology in Relation to Agriculture and Horticulture, p. 12, London, 1893.

[d] Hardwicke's Science Gossip, vol. 29, pp. 89–90, 1893.

[e] Journal für Ornithologie, vol. 12, pp. 429–434, 1864.

Essex, in 1581, by saying: "Which vermin by policie of man could not be destroyed, till at the last there flocked together such a number of owles as all the shire was not able to yield, whereby the marsh holders were shortly delivered from the vexation of the said mice." Similar testimony as to the efficiency of owls as destroyers of voles is contained in other chronicles, and in the account of later outbreaks the species is definitely stated to be the short-eared owl.

The short-eared owl inhabits the temperate parts of both continents. In each its range extends northward well beyond the Arctic Circle. It is an irregular migrant and always appears in large numbers where voles, lemmings, or other mice become unusually abundant. It nests on the ground in tall grass, usually in moist meadows, a habitat peculiarly fitted for the operations of this consumer of meadow mice. Doctor Fisher reports the results of examinations of 101 stomachs of this species. Of these, 11 contained small birds; 77, mice; 7, insects; and 14 were empty. In the 77 stomachs that contained mice fully a hundred field mice were identified. Doctor Rörig examined 51 stomachs of this species and found in them remains of 90 injurious rodents, of which 76 were *Microtus*. He examined also 480 pellets of this owl, finding remains of 3 beetles, 9 small birds, 7 bank voles, 22 *Microtus agrestis*, and 842 *M. arvalis*.

For purposes of comparison, the results of the examinations of owl pellets are here presented in tabular form. The figures, disregarding fractions, represent the average number of individual mammals and birds found in 100 pellets of each species of owl.

Kind of mammal or bird found in owl pellets.	Barn owl.				Long-eared owl.			
	Strix pratincola (Dr. Fisher).	*Strix aluco* (Dr. Altum).	*Strix aluco* (Rev. Jäckel).	*Strix aluco* (Dr. Rörig).	*Asio wilsonianus* (Dr. Fisher).	*Asio otus* (Dr. Altum).	*Asio otus* (Dr. Rörig).	Short-eared owl—*Asio accipitrinus* (Dr. Rörig).
Harmful rodents:								
Mus (rats and mice)	87	48	87	56	46	10	2	0
Microtus (field mice)	166	121	139	241	114	182	168	180
Other rodents	3	[a]4	[a]1	0	0	[a]8	[a]2	[a]1
Insectivorous mammals (shrews, moles, and bats)	8	202	80	29	52	1	3	0
Small birds (sparrows, etc.)	5	3	(b)	11	26	2	1	2

[a] Bank voles (*Evotomys*).

[b] Not given.

The barred owl (*Syrnium varium*) is larger than the species already considered. It resides throughout eastern North America from Nova Scotia to the Gulf and westward to the treeless plains. It usually lives in rather dense forests and swamps and nests in hollow trees. Owing to its greater size, its food includes larger mammals and birds than that of the last three species. Thus, it is able to carry off a good-sized domestic fowl, and no doubt occasionally it raids poultry. However, Doctor Fisher's examination of 109 stomachs of this species indicates that it is far less harmful than is generally supposed. Five stomachs contained poultry or game; 13, other birds; 46, mice; 18, other mammals; 4, frogs; 1, lizard; 2, fish; 14, insects; 9, crayfish; and 20 were empty. Field mice were positively identified in more than half of the 46 stomachs that contained mice.

The great horned owl (*Bubo virginianus*) is the largest owl resident in the United States. Its range, including the subspecies, extends from Costa Rica to the northern limit of deep forests and from ocean to ocean. In South America occur a number of closely related forms.

The great horned owl has an evil reputation with most farmers on account of its destruction of poultry. The bad reputation is only partly merited. Doctor Fisher examined 127 stomachs of this species. Of these, 31 contained poultry or game birds; 8, other birds; 13, mice; 65, other mammals; 1, a scorpion; 1, a fish; 10, insects; and 17 were empty. About half the mice found were meadow voles and the majority of the "other mammals" were rabbits. In central Kansas, some years ago, I examined over a dozen nests of this species in which young were being fed. The nests contained rabbits (*Lepus floridana mearnsi*), fox squirrels (*Sciurus rufiventer*), wood rats (*Neotoma baileyi*), skunks (*Mephitis*), field mice, and in two cases feathers of the flicker (*Colaptes auratus luteus*), but in no case any feathers or remains of poultry. In the few cases in which these owls were observed by me to raid poultry the fowls were roosting upon trees late in the fall, and hence were unnecessarily exposed to attack. Where rats are abundant this owl has been known to prey largely upon that rodent. O. E. Niles, in a letter to Charles Dury, dated March 5, 1885, stated that at one time the remains of no less than 113 rats had been counted under the nest of a great horned owl.[a] On the whole, the great horned owl is not a very harmful species, and as it is rapidly disappearing in most parts of the United States warfare against it may be suspended.

The screech owl (*Otus asio*) is probably the most familiar of American owls. Including its ten or more geographic races, it has a wide distribution. It is too small to prey upon domestic fowls or game and is beneficial. Doctor Fisher reported on the contents of 255 stomachs, of which 1 contained a tame pigeon; 38, other birds; 91, mice; 11, other mammals; 6, lizards and batrachians; 1, fish;

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[a] Jour. Cin. Soc. Nat. Hist., vol. 8, p. 63, 1885–86.

100, insects; 5, spiders; 9, crayfish; 11, miscellaneous; and 43 were empty. A good proportion of the "other birds" were English sparrows. About a third of the mice were identified as meadow mice, while 24 were house mice. The large proportion of insects eaten is remarkable.

The burrowing owl (*Speotyto cunicularia hypogæa*) is a small species, common on western plains, and noted for its abundance during summer in prairie-dog "towns," where it occupies the deserted burrows of that rodent. Of 32 stomachs of this owl examined by Doctor Fisher, 2 contained mice; 1, a prairie dog; 3, lizards; 3, scorpions; 1, a centiped; 30, insects, and 1 was empty. The species is largely insectivorous and undoubtedly highly beneficial.

Several other species of owls occur in the United States, but at no season are they abundant over any considerable area. Probably all feed largely upon meadow mice. Doctor Fisher's report covered only a small series; but 6 out of 9 great gray owl stomachs, 4 out of 22 sawwhet owl stomachs, 10 out of 38 snowy owl stomachs, and the single hawk owl stomach examined contained the remains of field mice.

From the testimony of Doctors Fisher, Altum, Jäckel, and Rörig, and careful observations by others, the great value of owls for reducing the number of meadow mice is established beyond doubt, and the various species should everywhere be protected by legal enactments.

CROWS.

Among the most formidable bird enemies of field mice are the larger members of the crow family (*Corvidæ*). The fact that ravens, hooded crows, and rooks in the Old World feed upon voles and lemmings has often been noted. American crows have similar habits and feed upon field mice whenever occasion offers. Besides the common crow (*Corvus brachyrhynchos*) the list of mouse-eating crows includes the fish crow (*Corvus ossifragus*), the northwest crow (*Corvus b. caurinus*), the raven (*Corvus corax sinuatus*), and the white-necked raven (*Corvus cryptoleucus*). Magpies and the larger jays also destroy mice to some extent.

The food habits of the common crow form the subject of Bulletin No. 6 of the Biological Survey.[a] The results of examinations of 909 stomachs of crows are tabulated in the report. Of this number, 78 contained mice, they being fourth in order of importance on the list of animal food for the year. Professor Barrows says: "There is abundant proof from several sources that crows often capture living mice, particularly the short-tailed field mice, which build their nests usually on the surface of the ground among the roots of grass. Here the crows discover them, and, tearing the nest to pieces, devour the young and not infrequently catch the adults as well. By far the greater number of the mice found in the stomachs were meadow mice, or voles (genus *Microtus*), and most of them were the common species (*Microtus pennsylvanicus*)."

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[a] The Common Crow of the United States, Walter B. Barrows and E. A. Schwartz, 1895.

In midwinter, when the ground is covered with snow, crows find but few field mice; but as spring approaches and the snow begins to melt on the meadows, the bulky grass nests of the mice are first exposed. The crows may then be seen searching the meadows for them. They alight near the openings in the snow, pounce upon the nests, tear them to pieces, and as the mice scamper out the crows often succeed in capturing them. Later in the spring, when crows feed their nestlings, insects are more abundant and the nests of mice are hidden in the growing grass, so that relatively fewer mice are eaten. Still later, after the young crows have left their nests and mowing machines have once more exposed mouse nests in the meadows, crows again spend much time searching for young meadow mice.

It is of interest to note that complaints of recent depredations of field mice are especially numerous from sections of the United States where for several years past bounties have been paid for killing crows.

CUCKOOS AND SHRIKES.

The larger species of the family of cuckoos (*Cuculidæ*) are known to feed extensively upon vertebrates. The two more common cuckoos of the United States are too small to share this habit, but the road-runner (*Geococcyx californianus*) of the Southwest feeds rather commonly on reptiles, batrachians, and small rodents. Prof. F. E. L. Beal captured one in California which had eaten a field mouse (*M. californicus*).

The great northern shrike (*Lanius borealis*) is a common winter visitor in the northern half of the United States. It arrives from the north in October and remains until March or April. It is a familiar bird to most residents of rural districts. Gray in general color, with black wings, conspicuously barred with white, and with white in the tail, it looks much like a mocking bird, but has a strong, sharply-hooked bill, which enables it to kill small birds and mice. In its summer home it is probably much more insectivorous than with us. It comes to the United States at a time when insects are not abundant, and feeds mainly upon small birds, mammals, and grasshoppers. Mice were found in one-third of the stomachs examined by the Biological Survey and more than half of those identified were meadow mice. Doctor Mearns is quoted[a] as authority for the statement that in Minnesota during March shrikes live almost exclusively on meadow mice. Most farmers have noticed that the northern shrike, or "butcher bird," catches meadow mice. The birds are often seen at husking time as they hover in the air or sit on a fence post or top of a hedge, ready to pounce upon every mouse that escapes from corn shocks as they are torn down or moved.

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[a] Bulletin 9 of the Biological Survey, Cuckoos and Shrikes in their Relation to Agriculture, p. 19, 1898.

The smaller shrikes (*Lanius ludovicianus* and subspecies) also somewhat resemble mocking birds in color. They are summer residents of many parts of the United States. As insects are abundant during the greater part of their stay, they are insectivorous to a greater extent than the northern shrike. Stomach examinations prove that mice form 16 per cent of the food for the entire year, but the birds are less able than the larger species to cope successfully with adult meadow mice, yet they undoubtedly destroy a good many voles, and several have been identified in their food; but smaller mice are more frequently caught.

Although shrikes destroy a few useful birds, they more than compensate for this by their destruction of small rodents and insects, and they fully merit protection by the farmer.

OTHER BIRDS.

Members of the order *Herodiones*, including herons, storks, and ibises, are usually persistent enemies of meadow mice. Many of them frequent meadows and swamps, especially in the breeding season. Unfortunately, the summer range of the larger number of species is too far south to bring them much in contact with voles. However, a few species spend the summer where mice abound and make them an important part of their food.

Of our herons, the American bittern (*Botaurus lentiginosus*) is probably the best known destroyer of voles. The bird is a summer resident in all suitable localities in temperate North America, making its home in moist meadows, bogs, and swamps. Baird, Brewer, and Ridgway say of it: "It does not move about much by day, although it is not strictly nocturnal, but is sometimes seen flying low over the marshes in pursuit of short-tailed or meadow mice, which are frequently taken whole from its stomach."[a] Records of the Biological Survey contain a number of instances in which meadow mice were found in stomachs of this species.

Among other *Herodiones* that feed upon meadow mice are the least bittern (*Ardetta exilis*), wood ibis (*Tantalus loculator*), great blue heron (*Ardea herodias*), American egret (*Herodias egretta*), snowy heron (*Egretta candidissima*), and the black-crowned night heron (*Nycticorax nycticorax nævius*). While frogs, fish, and fresh-water crustaceans form the major portion of their food, they feed also upon mice, shrews, and other small mammals. As a group they undoubtedly effect a reduction in the numbers of meadow mice in America.

During a plague of field mice (*Peromyscus* in this case) in South America in 1872–73 Mr. W. H. Hudson observed that storks became very numerous. He says: "In the autumn of the year [May, 1873] countless number of storks (*Ciconia maguira* [*Euxenura maguira*]) and short-eared owls (*Asio accipitrinus*) made their appearance. They had also come to assist in the general feast. * * * Years have perhaps passed during which scarcely an individual of these kinds has been seen; all at once armies of majestic white storks are seen conspicuously marching about the plain in all directions, while the night air resounds with the solemn hootings of innumerable owls."[a] European writers bear testimony to the usefulness of the common stork (*Ciconia ciconia*) in destroying voles and other kinds of mice.

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[a] The Water Birds of North America, vol. 1, p. 70, 1884.

The family of cranes (*Gruidæ*) range farther north than the herons, and the three North American species are known to feed to some extent upon voles, capturing both young in the nests and adults. The habitat of cranes includes upland prairies as well as moist meadows, and thus probably they prey upon more species of voles than herons do.

Although the usual food of gulls (*Laridæ*) consists of fishes and insects, they feed also upon rodents. During the vole outbreak in Scotland in 1892 several species of gulls, notably the great black-backed gull (*Larus marinus*), fed upon the field mice; and gulls are usually named among the species that feed upon lemmings during their migrations. It is highly probable that the larger American gulls feed upon field mice whenever they find them.

SNAKES.

Snakes must be included among the natural enemies of field mice. While nearly all snakes feed extensively upon insects, many of them eat vertebrates, including fishes, reptiles, batrachians, birds, and mammals. The larger bull snakes (*Pituophis*), black snakes (*Callopeltis*), and rattlesnakes (*Crotalus*) of the United States feed largely upon mammals, including rabbits, prairie dogs, pocket gophers, and ground squirrels, as well as different species of rats and mice. Black snakes and bull snakes probably kill more field mice than the others; but black snakes destroy also a considerable number of nestling birds and birds' eggs, so that part of their beneficial work is offset by this injurious habit. A nurseryman in Pennsylvania reports that he secured immunity from mice in his nursery by turning loose in it 50 black snakes. On the whole, snakes, except the venomous species, are deserving of the farmers' protection. Like the toad, the smaller kinds feed almost wholly upon insects; but an inherent prejudice induces thoughtless people at every opportunity to destroy these friends of agriculture.

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[a] Naturalist in La Plata, pp. 64–65, 1892.

REPRESSION OF FIELD MICE—ACTIVE MEASURES.

We pass now to a consideration of such means for the repression of voles as are under the immediate control of the farmer. These consist of trapping and other mechanical methods of destruction and the use of poisons, fumes, and micro-organisms.

TRAPPING.

Trapping is a simple way to destroy field mice, but it is seldom resorted to because few people have patience to follow it up persistently and to look after the necessary large number of traps. When field mice are abundant it is essential to use many traps and to continue trapping for several weeks. Equipped with a hundred or more effective traps, a good trapper should be able to make decided inroads upon the numbers of the pests, if not to practically exterminate them over a limited area.

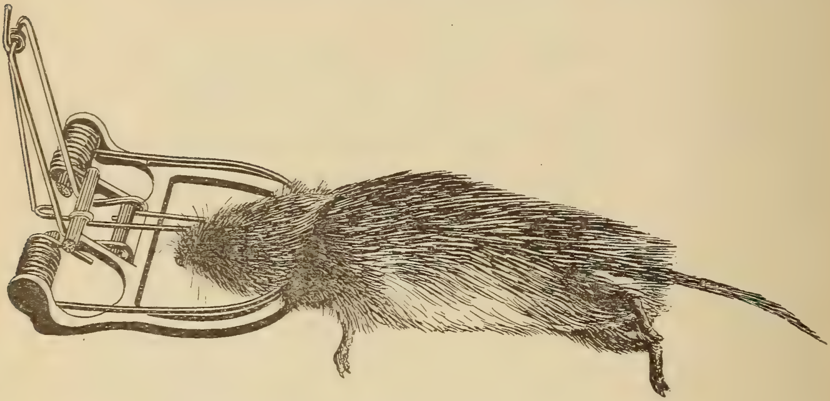

FIG. 2.—Field mouse caught in baited guillotine trap.

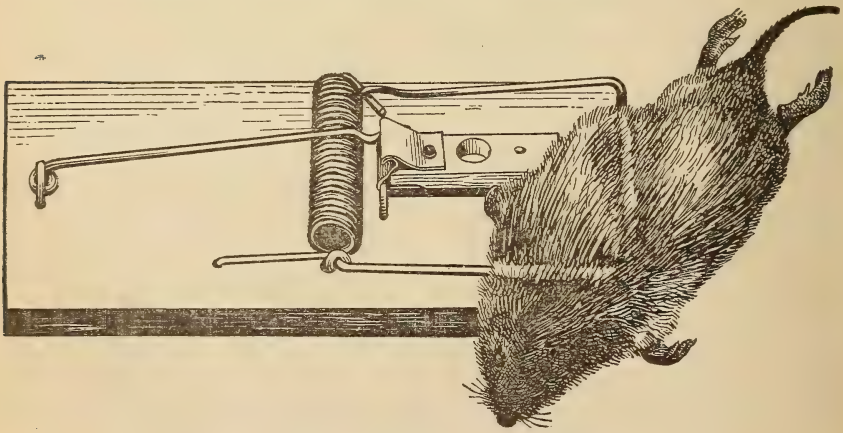

FIG. 3.—Field mouse caught in unbaited guillotine trap.

Trapping has special advantages for small areas such as lawns, gardens, and vegetable or nursery pits and packing houses, where a limited number of mice are present, and wherever, for any reason, there are objections to the laying out of poison. As voles do not readily enter cage traps, simple wire traps of the guillotine order, in which mice are instantly killed, are the most effective (text figures 2 and 3).

Traps without bait may be set across the runs of the mice, where the animals spring them by coming in contact with the trigger, or they may be baited with oat or corn meal. For trapping pine mice an opening should be made in the underground tunnel large enough to receive the trap, which should be set across the bottom of the runway. The traps may be baited or not, but the opening should be covered.

CULTIVATION.

Thorough cultivation of fields tends to keep down the number of voles. Cultivation implies the destruction of weeds and all the annual growths that provide winter shelter for the animals. The mere plowing of a field badly infested by mice is sufficient to drive out most of them. However, as a rule the animals escape to adjoining fields and return to their old haunts when growing crops or weeds afford sufficient shelter.

The Scottish vole plague of 1892–93 originated in hill pastures, where heather, moss, and numerous grasses afforded abundant shelter. The outbreak on the border farms in 1876–77 occurred under similar conditions. The Thessalian vole plague of 1891 and 1892 apparently grew out of peculiar conditions of cultivation. The district visited by the mice is an extremely fertile one on the plains near Larissa. The lands are mostly in large holdings, the owners of which rent the fields to peasants who live in the villages. Owing to primitive methods of cultivation, each peasant has only a small tract. As the number of renters is small, a system of rotation is practiced which brings the same tracts into cultivation about once in three years, while two-thirds of the district lies fallow. In the fallow lands voles multiply until at times they invade the cultivated lands and ruin the crops.[a]

While a high state of tillage does not always bring immunity from voles, it does much to lessen the danger of attacks from them. A system which regularly brings all the land of a district under the plow and permits little of it to lie unused will secure the greatest immunity from these pests.

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[a] Prof. T. Loeffler, Centralblatt für Bakteriologie und Parasitenkunde, vol. 12, pp. 1–17, July 5, 1892.

OTHER MECHANICAL DEVICES.

Mechanical methods of destroying voles have long been in use, and sometimes are effective. In some countries where the animals are abundant, considerable reliance is placed upon the efforts of laborers armed with spades and other digging tools and assisted by dogs. In this manner thousands are sometimes killed.

Trenching also is a favorite method of catching both mice and moles. Trenches a foot and a half deep are dug at intervals about the infested lands. They are wider at the bottom than at the top, or have perpendicular sides. The animals fall into these pits and are unable to climb out. Men and dogs regularly make the rounds and despatch the animals thus caught. This method was used effectively in Dean and New Forests in 1813 and 1814 and in the later vole plagues of Great Britain and central Europe.

Inundation with water and fumigation with sulphur have been employed to some extent in killing field mice. All these mechanical methods involve much labor and are slow and often expensive.

POISONING.

As the laying out of poison for wild animals is attended by danger to other animals and to human beings, it should never be intrusted to the ignorant or careless. In some countries the laying of poison is forbidden by law, and several of our own States have enactments regulating the practice or forbidding it. The majority of States have no legislation prohibiting the use of poison, and the matter is usually left to the judgment of the individual farmer, to whom attaches responsibility for any damage that may result through his carelessness.

STRYCHNINE.

All things considered, strychnine is the most satisfactory poison for field mice. Although a very deadly substance, it is less dangerous to handle than either phosphorus or potassium cyanide. Its extreme bitterness renders it less liable to be mistaken for a harmless drug. Nevertheless, every precaution should be taken in handling it. The strychnine salt most used commercially is strychnia sulphate. This is the best for poisoning purposes, since it is soluble in boiling water, while the alkaloid requires the presence of an acid for its solution. To disguise the bitterness of the poison when employed for rodents, sugar is used, or the strychnine may be mixed with its own bulk of commercial saccharine.

For poisoning field mice various baits may be recommended, such as wheat, oatmeal, and corn, among the grains, and seeds of various plants, as the tomato, dandelion, sunflower, and others. The bait should be soaked over night in a poisoned sirup, which may be prepared as follows:

Dissolve an ounce of strychnia sulphate in a pint of boiling water; add a pint of thick sugar sirup and stir thoroughly. The prepared sirup may be scented by a few drops of oil of anise or rhodium, but this is not essential. A half ounce of borax is said to keep the mixture from molding.

The above quantity (a quart) of sirup is enough to poison a half bushel of wheat or corn, but smaller proportional quantities of grain and sirup may be mixed as needed. If after thorough mixing the solution is not sufficient to wet all the grain, add a little water. After standing over night, if the grain is too wet, a little dry corn meal will take up the excess of moisture. If oatmeal is used as a bait, when the mass is wet throughout with the sirup, it may be used immediately.

Because of the danger of destroying native birds, such as quail, sparrows, and others, the poisoned bait should not be placed in exposed situations, but under shelters which will admit mice but exclude birds. Wide boards lying upon thin cross pieces of wood are excellent for the purpose. For pine mice baits may be placed in the underground tunnels without endangering birds. For other mice pieces of drain tile about 1½ inches in diameter may be laid along the trails, and the baits inserted into the tiles with a long knife or spoon. Tiles are recommended by the French Minister of Agriculture, but old tin cans with flattened ends or small openings are excellent substitutes.

In winter the following plan is especially recommended for orchards and nurseries:

Cut small twigs from branches of apple trees (suckers are excellent for the purpose) and either dip them in the strychnine sirup or apply the sirup to them with a brush. Scatter the poisoned twigs near the trees to be protected. This plan is excellent for either field mice or rabbits, and it entirely obviates the danger of poisoning birds or domestic animals.

OTHER POISONS.

Among other poisons that have been recommended for the destruction of field mice are phosphorus, potassium cyanide, and various mineral poisons, including arsenic. The mineral poisons as a rule are less virulent than the others.

Phosphorus, when properly used, is an excellent though rather slow poison for rodents, a very small quantity producing death. It is, however, dangerous to handle both because of the liability of severe burns and because of the danger of serious conflagrations. Its use in the West to destroy ground squirrels frequently results in the burning of standing grain and in extensive prairie fires. For these reasons we do not recommend its use for poisoning mice.

Potassium cyanide is a most deadly poison, almost tasteless, and with no known antidote. It is therefore dangerous to man, and its general use for poisoning rodents can not be recommended. It is open to the further objection that upon exposure to air it rapidly decomposes and becomes less effective.

Among the mineral poisons that have been successfully employed in destroying field mice is barium carbonate. This substance is comparatively cheap, and is both odorless and tasteless, so that rodents do not detect its presence in food. Its action in the digestive tract of rats and mice is slow, but reasonably sure to produce death. Larger animals are not affected by small doses of the poison, such as would be put out to kill mice; and for this reason its use is attended with less danger than that of strychnine or arsenic.

This poison is usually administered in the form of dough made of four-fifths flour or meal and one-fifth barium carbonate. A little sugar is added to sweeten the mixture, and, if desired, a couple of drops of anise oil. The dough is cut into small lumps (the size of a large pea) for mice, but larger ones are required for rats. The poison may be fed also in moistened bread or oatmeal.

Although the advantages of barium carbonate as a rodent poison have been long known, it has recently been brought into prominence on account of successful experiments in destroying field mice with it made by Dr. Lorenz Hiltner, of Munich, Germany,[a] and by E. Schribaux in France.[b]

Winter is the most favorable season for poisoning field mice. Summer poisoning is usually less successful, on account of the abundance of green food. Although the animals are active in nearly all kinds of weather, they move about more freely in winter when it is comparatively warm. For the best results, therefore, poison should be set out in the evening of rather mild days. Since mice usually work under the snow, it is useless to put out poison for them on the surface of the snow.

The importance of protecting birds during poisoning operations can not be too earnestly insisted upon. In France, in 1905, a great scarcity of birds, particularly partridges, was noticed in the departments of Vienne, Deux-Sevres, and Charente, which was attributed to the extensive use of poisons during 1904 to destroy field mice.[c]

Says the editor of Western Field, of San Francisco, Cal.: "In two or three counties in this State—notably in that of Santa Barbara—the quail, dove, and song birds are being threatened with actual extermination from poison put out by farmers with the intent of killing off the ground squirrel pests. The poison has been scattered indiscriminately over wide areas, and reliable observers keep sending in reports of their finding thousands of dead birds of all kinds, victims of the squirrel bane."[d]

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[a] Praktische Blätter für Pflanzenbau und Planzenschutz, vol. 1 (new series), pp. 112–116, November, 1903.

[b] Journal d'Agriculture Pratique, vol. 9 (new series), No. 22, pp. 708–710, 1905.

[c] Journal d'Agriculture Pratique, Sept. 14, 1905, p. 327 (quoting the journal Temps).

[d] Western Field, vol. 8, No. 1, p. 57, February, 1906.

Additional Methods of Poisoning.

The following recipes and recommendations contain useful hints to farmers who for any reason do not wish to follow the recommendations already made:

To protect trees from mice we take blocks of wood 6 inches in length by 3 in diameter, and with a six-quarter auger bore a hole 4 inches in depth. Mix a dessert spoonful of arsenic with a quart of corn meal, or in that proportion, put one spoonful in each box prepared as above, and put it under each tree beneath the mulch. Renew the meal once or twice each year. This process is a sure protection.—Lewis H. Spear, in U. S. Agricultural Report for 1852, p. 153.

Different poisonous preparations have been used with effect on these vermin. The following are among the best:

Two ounces of carbonate of barytes, mixed with a pound of suet or tallow; place portions of this within their burrows or about their haunts. It is greedily eaten, produces great thirst, and death ensues after drinking. This is an effective poison, as it is both tasteless and odorless. Or,

Two ounces finely powdered arsenic, 2 ounces lard, 10 drops oil of rhodium, mixed with flour or meal into a thick dough, and pills of it scattered about the orchard and nurseries.—E. A. Samuels, in U. S. Agricultural Report, 1863, p. 272.

These animals (*M. agrestis*) had devoured the succulent flower stems of some hundred *Lobelia cardinalis* and the fleshy stems of Pampas grass (*Arundo conspicua*). After making a number of futile experiments, I noticed the animals feeding on dandelion seeds. Securing some ripe heads of dandelions and cutting off the down, I steeped them in a solution of strychnine and laid them in the runs of the voles. In a few days I had exterminated all of them from the garden.—D. Melville, in Annals of Scottish Natural History, January, 1893, pp. 41–42.

In the month of February half a ton of one-and-a-half inch drain tiles were laid down separately throughout the plantations and a teaspoonful of oatmeal was placed in each, which was soon discovered and eaten by the mice. Phosphorus paste was then added to the meal and latterly small quantities of arsenic. The plan succeeded perfectly, and in a very short time they were all destroyed.—Sir Robert Menzies, Rannock, Perthshire, Scotland.

A mixture of four-fifths flour and one-fifth arsenic is introduced by the aid of a small palette knife into the middle of a drain pipe with an internal diameter of about 3 centimeters (1¼ inches), and this pipe is then put near the holes of the mice.—Recommended by the French Minister of Agriculture in a letter to the British Vole Commission of 1892.

I shell out pumpkin seed, grind it into meal, and mix with strychnine. This is put into a tomato or corn can, the sides bent flat, so that no other animal can get at the meal, and the can then laid on the side. It is a great success.—Method used by Fred. Noerenberg, Cascade Springs, S. Dak.

FUMIGATION.

Generally speaking, the various methods of fumigation for destroying field mice are unsuccessful. Nearly all the species have numerous burrows, and it is difficult to determine the occupied ones. To insure success, therefore, all the burrows must be fumigated, and the amount of labor and material involved makes the methods too expensive. However, occasionally carbon bisulphid may be used to advantage, especially with pine mice. A little of the liquid is poured upon a piece of rag or other absorbent material and this pushed into the burrow, which at once should be closed with soil to confine the gas.

MICRO-ORGANISMS.

The efforts of Löeffler, Danysz, Mereshkowski, and other European bacteriologists to destroy field mice by means of infectious diseases have been partially successful, but as yet no disease appears to have been found that is really contagious. As long, therefore, as infection can be effected only by direct inoculation or through the food, the methods have little, if any, advantages over ordinary poisons.

The Biological Survey, cooperating with the Bureau of Animal Industry, is engaged in experiments with various micro-organisms for destroying field mice and other rodents, and practical results along these lines may yet be reached.

RECOMMENDATIONS TO FARMERS.

When conditions are unusually favorable for an increase of voles, the farmer should put forth all possible efforts to repress them. With cooperation among the farmers of a district serious losses may readily be prevented. The danger lurks outside of cultivated areas and in the swamps, forests, and waste places along fence rows and small brooks that harbor weeds and underbrush. It is by giving attention to these and by reducing to a minimum the extent of shelter for mice that the farmer can most successfully protect his crops.

A second important consideration is the protection of animals and birds that prey upon field mice. The farmer should by all means acquaint himself with the food habits of the various species of wild animals of his vicinity, to the end that he may distinguish friend from foe. Every farmer can do much in his community to help form an enlightened sentiment in favor of beneficial birds, mammals, and other animals.

PREVENTION OF INJURY TO ORCHARDS AND NURSERIES.

Injury to orchards and nurseries by field mice may generally be prevented by forethought and the exercise of ordinary care. Of first importance, always, is clean tillage. No grass or weeds should be left in or near the nursery. So well is this understood by the majority of experienced nurserymen that by clean tillage they secure practical immunity from the ravages of mice except in winters of deep and long-lying snow. If grass and weeds are destroyed in fence corners and waste lands near the nursery, complete immunity from mice ravages can be depended upon even in winters of deep snow.

Unfortunately, nurserymen can not control the lands which environ their trees, and when snow falls to a considerable depth prompt measures are sometimes necessary to keep mice from destroying them.

This can be accomplished most readily by dragging a heavy log or stick of timber several times around each block of trees, packing the snow so firmly that mice can not tunnel under it. If this precaution is taken promptly after the first snow fall, subsequent falls will require but little attention. Some nurserymen plow furrows on both sides of the trees, throwing up the soil in a ridge along the rows; but the expedient is of doubtful utility.

Much of what has been said about the nursery will apply as well to young orchards. Clean cultivation is equally important, and under no circumstances should matted grass be allowed around the trunks of trees or litter be permitted to accumulate in the orchard or along its borders. In case of heavy snows, dragging should be resorted to or the snow stamped down carefully around each tree.

In the absence of snow, a cleared space of about 18 inches radius about the trunk of each tree is enough to prevent damage. The surface of the cleared space should be as smooth as possible, as even clods of earth may afford shelter for mice.

If any part of the orchard is so located as to be subject to snowdrifts and mice are abundant in the vicinity, tree protectors should be used. These may be had of dealers for 60 to 75 cents per hundred or they may be made by the farmer. Those offered for sale are usually wood veneers of some sort. In California the wood of a yucca (*Yucca brevifolia*) is utilized for the purpose. Strips of wire cloth make excellent protectors, and tarred paper is a favorite with some horticulturists. The wire cloth or paper is cut into strips about 7 inches wide and at least 15 inches long. A strip is secured around each tree with wire or cord. Tarred paper should never be used on very young trees, and when used on others should not be left in place during the summer, since it may injure the growing tree.

Various paints and washes have been recommended to prevent attacks of mice and rabbits in orchards. The majority of these are without merit and some of them are liable to kill young trees. Some of the washes require renewal after every hard rain. In experiments with a wash of whale-oil soap, crude carbolic acid, and water, for apple trees, it was found that in about forty-eight hours the carbolic acid had so far evaporated that mice renewed their work upon the bark. Blood and grease, said to give immunity from rabbit attacks, would invite the attacks of field mice.

Reports recently received by the Biological Survey seem to indicate that the ordinary lime-and-sulphur wash, recommended for the winter spraying of trees to destroy the San Jose scale, is an effective preventive of the attacks of both mice and rabbits. Personal observations during the winter of 1906–7 indicate that this claim is well founded. Several correspondents state that they have tried the wash successfully, and the matter is worth further investigation. The wash is very cheap (from 1 to 2 cents a gallon when prepared in 45 to 50 gallon quantities) and is easily applied to the trunks of trees either in the form of a spray or by the use of a brush. One thorough application in November would probably be effective for the entire winter. The ingredients of the wash are 20 pounds of unslaked lime, 15 pounds flowers of sulphur, and water to make 45 to 50 gallons. The mixture should be boiled in an iron kettle at least an hour and applied to the trees while warm.[a]

Winter mulching of trees is dangerous, unless the neighborhood is known to be free from mice. Mulch containing straw may be placed in the orchard in spring, but it should be removed before the approach of cold weather. Fine, thoroughly rotted manure may be used in the orchard with but little danger. Lime or ashes about the trunks of trees has some value in keeping off mice, but clean cultivation is equally or more effective.

REMEDIES FOR INJURED TREES.

When trees are girdled by mice, portions of the inner bark (cambium layer) are often left, partly covering the hard wood below. If sunlight and wind have free access to the injury, the remaining bark dries up and the tree dies. If light and air are excluded, new bark will form and the wound quickly heal over. To facilitate the healing process, it is important that wounds be covered as soon as possible. As a covering for wounded trees, wax, paint, strips of cloth, clay, and cow dung have been recommended, but none of them has any advantages over fresh, loose soil. Unless the ground is frozen, this is always available and easily applied to wounds near the ground. All that is needed is to mound up the soil about the trunk of the tree high enough to cover the wound. Allowance should be made for settling of the soil, and the covering should remain during the entire summer. Plate VIII shows trees 5 inches in diameter which were completely girdled by mice in December, 1903. Soil was heaped about the trunks in January, 1904, and allowed to remain until May, 1905, when it was removed and the photographs made. New bark completely covered the wounds, leaving slight visible scars.

If large fruit trees are injured high up, as sometimes happens when snow is drifted about them and mounding up the soil is impracticable, there are other means of saving them. If the injury is not too extensive, grafting wax should be applied to the wounds and the tree wrapped with strips of cloth. If, however, the cambium be eaten through over considerable surface, bridge grafting may be resorted to.

Bridge grafting is not difficult. It consists in bridging over the girdle of eaten bark by means of scions or small twigs of the same kind of tree. The injured bark at the top and bottom of the wound should be cut back to live, healthy tissue and small clefts or notches made in it. The ends of the scions are then cut to fit these notches, the scion itself being left slightly longer than the span of the injury, so that they may be sprung into position and held firmly. The cambium layer of tree and scion should meet over as much surface as possible. Some operators use a chisel to cut the notches and a small nail or tack at each end to hold the scion in position. The last step is to cover all exposed cut surfaces with grafting wax or to bind all with waxed cloth so as to exclude air until the scions are firmly united with the tree.

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[a] See Yearbook U. S. Dept. of Agriculture, 1906, pp. 429–446, Lime-sulphur Washes for the San Jose Scale.

If young orchard trees are but slightly injured a covering of grafting wax may be applied with good results, though a covering of soil is equally effective. The usefulness of paints for damaged trees depends both upon the stage of growth and the composition of the paints. Some are said to kill trees if applied in the spring. Coal tar will do the same, as the writer learned by costly experiment. Pine tar has been highly recommended for wounded trees, but it has been known to kill young peach trees to which it was applied to keep away mice.

For nursery stock badly injured by mice there is no remedy. When the injury is slight the wounds may be covered with wax or soil and will heal over in a season, delaying sale for a year. This applies to both deciduous trees and evergreens. In the case of young trees, when the injury is considerable the tops may be cut out and new ones grown more quickly than fresh stock, but this is possible only when the wounds are well above the original graft. In the case of valuable or rare sorts bridge grafting may be resorted to, but for ordinary stock it is cheaper to pull up the injured trees and grow new ones.

SUMMARY.

Field mice, because of their small size, secretive habits, and great fecundity, often become a menace to farm and orchard crops in many parts of the country. In the Old World, as well as in America, corrective measures begun after a plague of the animals is in full progress have usually proved ineffectual. Preventive measures, if carefully carried out, are sufficient to avoid serious losses.

Among the more important measures for preventing ravages by field mice are the following:

1. Protection of the natural enemies of field mice, particularly owls, most hawks, shrikes, snakes, skunks, badgers, and most species of weasels.
2. Elimination of the breeding grounds of field mice by draining swamps and cleaning waste places that afford the animals harborage.
3. Periodic plowing of grass and other lands for the rotation of crops.
4. Clean cultivation of corn and all other crops, and especially of orchards and nurseries.

5. Clean mowing of grass lands and permanent meadows, so that no old grass is left over winter.

6. Careful burning about orchards and gardens of weeds, trash, and litter of all kinds that may serve the animals for winter shelter.

7. When necessary, the burning of dead grass in meadows and pastures. This, however, should not be delayed till late spring, when ground birds are nesting.

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